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NEW ENGLAND AND THE NEW TARIFF BILL.

In her early history, New England's prosperity was the result of her agriculture and commerce. Her lands were then fertile and productive; they are now worn and wasted, and their annual yield is not sufficient to supply food for her own people. Then her labor was largely employed in ship-building and the carrying trade; these industries, instead of keeping pace with the growth of her population, have steadily declined.

The highly restrictive tariff of 1824 struck a deadly blow at our foreign commerce, in which New England was largely interested, and from which she drew a large share of her material prosperity. After its adoption she was compelled to turn her attention to manufactures in order to give employment to her capital and labor. In this department of national industry she soon took the leading part, which she has easily held for more than a half-century. At the time when she was forced to make this new departure, her population was more than one sixth of the population of the whole Union; it is now less than one twelfth, and the disproportion is growing greater as the years roll on. Situated as she is, she finds no contiguous population on the east and south to consume her manufactures; a Canadian tariff wall shuts her out from the people on the north; her home markets must be looked for in the West. Our population is

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moving southward and westward, to occupy the cheap and fertile lands that attract industrious and enterprising people from the Atlantic seaboard. The tide has been flowing westward for many years, and with greatly-increased volume since the development of our vast railroad system. Railroads have opened the way to immigration and reduced the cost of transportation. The swarms that settled this vast region brought with them not only the ideas and institutions of the East, but the enterprise and genius of the people from whom they sprang. The settlers from New England developed the same traits in Ohio, Indiana, and Illinois that they inherited from their ancestors in Massachusetts, Connecticut, and Rhode Island. They accepted the philosophy dictated by their situation, and embarked their capital, skill, and labor in manufactures as well as in agriculture.

A competition has sprung up in the West against which New England can have no protection. Her rivals are protected against her cheap and productive labor, not by congressional, but by railroad, tariffs. Freight rates and proximity to raw materials and the markets, constitute a Chinese wall around the western and southern manufacturers that no power can level. While these industries are not yet fully developed, they are in a vigorous condition. Their hold must continue to grow stronger and that of New England weaker, in all the territory of the West and South. During the last decade the precedence of New England in manufacturing has been constantly in peril. In some articles she will continue to hold the market for a number of years; in others she has already given up the contest.

The materials which she must have for her mills to manufacture, are not produced within her own limits. A great part of the food upon which her people subsist must be brought over long lines of railway, and the freight charges must be paid by the consumers. The chief necessaries of life are more expensive to her people than to those of the West and South, from whom she procures them. Evidently she cannot buy her raw materials from them, pay cost of transportation back to the producers, and sell in competition with local rivals. Many branches of manufacture that until recent years had not crossed the Ohio River, are now fully domiciled in the West, and a western purchaser

may now procure almost any article of manufacture from a western factory.

The South, too, is beginning to attract the attention of the manufacturer, and her industrial growth in the last decade has been marvelous. Enterprising young men reared in New England are erecting factories and furnaces all through the South, establishing their plants in close proximity to the materials which they are to consume, and to the customers whom they are to supply. They are prepared to produce at the lowest cost, and to reach their customers with the lowest charges for transportation; hence they will hold the markets within their reach against all rivals. This is the condition of the manufacturer of the South and West, and it is a condition not in the power of New England to change. She cannot import hides from west of the Mississippi River, manufacture them into leather, and then transport the leather back to the West, and sell it in competition with the manufacturers of Chicago and St. Louis. She could not import cotton from Texas, manufacture it into cloth, send the cloth back to Texas, and sell it in competition with Texas manufacturers, if we of Texas had the factories with which to supply the demand.

Thus situated, what is New England to do? She cannot go back to agriculture, because in this she cannot compete with the West and South. Their lands are new and fertile; hers are exhausted. She cannot go back to the sea, where she was once at home, because the tariff has laid an embargo on our commerce. She cannot go into mining, because she has no mineral resources. She cannot go into forestry, because her lands are denuded, and even the lumber required for her manufactures must be brought from beyond her borders. She is restricted to manufactures. She must live by manufactures, or "go west and grow up with the country." With rivals at home and abroad calculating closely every item of advantage over her, she must "lay aside every weight" and run the race. She must cease to follow Pennsylvania, and must pursue her own interest. Instead of helping to pile up burdens on her own shoulders, she must help to take them off. In short, she must produce all her wares at the lowest possible cost. The chief factors of cost in every article are mate-

rial and labor. She has now the cheapest, most skillful, and most productive labor. There is something in her soil and climate, and perhaps in her blood, that makes her people easily first in the invention of labor-saving machinery. And by the time the world has caught up with her inventions she is well advanced in the improvement of them. In labor, she is now and can continue ahead of her competitors. In cost of raw materials, she is at a great disadvantage, because they are taxed. If they come from foreign countries, they are taxed for transportation charges, and taxed for government revenue, and taxed for the protection of the home producer against foreign competition. This burden she must unload. To continue to carry it is to abandon the contest and to contract the circle of her trade. A certain area of trade she will always hold, but that will not be sufficient to give employment to all her labor. By lowering the tariff so that she may obtain her raw materials on the same terms with her rivals, she can largely extend her markets, and dislodge many competitors who now feel securely established.

She should begin at once the work of emancipation. She has already delayed it too long. She should to-day, with her united political power, demand the removal of all taxes on all articles that she employs in manufacture. She should not stop with free wool; that would afford only partial relief. She should demand the removal of taxes from all fibers, coal, ores, and all metals not sufficiently advanced in manufacture to go into immediate consumption, such as pig and bar iron, blooms, billets, rods, copper, brass, lead, and zinc; all oils and dyes; in short, she should insist on being allowed to purchase her materials as cheaply as her rivals. Then, having the advantage over them all in the cheapness of her labor, she would take from her competitors every market which she and they could reach at the same cost of transportation. Instead of contracting the circle of her trade, as she is now doing, she would in this way very greatly extend it at home and abroad. She would make tributary to her mills all ports of the East accessible by sea. She should likewise unite her whole political power to untax the food upon which her people live. Having accomplished these ends, and possessing the advantages derived from the constant

lowering of the rates of transportation by rail, she would enter at once upon a new life.

Is this the policy outlined by the new tariff bill? It is precisely the reverse. The bill proposes to increase the rates of taxation on many raw materials. It transfers some of the most important articles from the free to the dutiable list, and on some of them it imposes very heavy duties. Further, it increases the duties on all food products, a great part of which New England must buy from other regions. The duty on wool is increased from an average rate of 34 to an average rate of 46 per cent. Camel's hair, which is now free, and of which we import six million pounds, is taxed 12 cents per pound, which is equivalent to 77 per cent. Nearly one half of the whole importation is used in the State of Massachusetts. Mica is taken from the free list and taxed 35 per cent. Its importation has been increasing for some years. Mica is used extensively in the manufacture of stoves, and the imposition of the tax will add to the cost of the stove and limit its sale. It is also used in electrical manufactures. The duty was placed on mica to exclude the foreign article, but much of the domestic product is wholly unsuited for electrical purposes. This tax increases the cost of both of these classes of goods, and may work their total exclusion from foreign markets. The cost of iron, enhanced by the tariff, is so much greater here than in England, that it requires all the advantage derived from our cheaper labor to enable us to obtain a small foothold in the foreign market. The difference in cost of stoves must be very small, for we export only about a quarter of a million dollars' worth. It may require but a very slight rise in the cost to extinguish that trade. It could be very much enlarged by reducing the cost.

The new bill greatly increases the duty on lime and cement, and this is in harmony with its general policy. As it serves a notice to quit on New England manufacturers, it is unnecessary for them to build any more houses or factories, or to repair those already standing. Instead of putting lime and cement on the free list and making it easier to build houses, giving employment to idle labor, the tax is increased on cement 50 per cent., and on lime 250 per cent., over present rates. This increase will make

building more costly, and, as a consequence, fewer houses will be built, and more people will be kept out of employment.

The duty on tin plates is increased 115 per cent. above existing rates. The purpose of this is to keep out every pound of tin plate and give the market to a domestic industry not yet born. The tax will increase the cost of tin plate to the consumers more than $8,000,000. It will reduce the consumption of canned goods at home and the export of them. The New England manufacturer of tin will feel the burden which it places on his shoulders. We imported of this plate last year 729,000,000 pounds. More than 30,000,000 pounds came in at Boston, and of 300,000,000 pounds that came in at New York, a large part doubtless found its way to New England.

Again, the bill transfers a large number of articles from the free to the dutiable list. Among them are aluminium, broom corn, straw, china grass, sulphuric and muriatic acids, eggs, milk, fresh fish, and apples. The duties are increased on the following materials consumed in New England manufactures: ingots, blooms, billets, and sheets of steel; extracts of logwood, sumac, and hemlock; quicksilver, gold leaf, flax, tow, dyewoods, glue, glycerin, linseed and olive oils, caustic potash, ground sumac, and sulphate of soda. These increased duties will enhance the cost of the finished products and render New England manufacturers less able to compete for the market. But her injuries do not end with these increased burdens upon her industries. Her food products have received full consideration in the new bill. The duties on them have been largely increased. The tariff on buckwheat has been increased over existing rates 50 per cent.; on corn, 50 per cent.; corn meal, 100; oat meal, 100; wheat and wheat flour, 25; butter and cheese, 50; beans, 240; peas, 60; potatoes, 66; fish, 100; bacon and hams, 150; beef, mutton, and pork, 100 per cent. On articles of subsistence she is heavily loaded with a cargo of mock protection. These duties will increase the prices to New England consumers, because they have to import largely; but they will not increase the prices to western and southern farmers. New England farmers and gardeners may levy tribute on the bread and butter of their home community; but while it may be advantageous to a small class,

it will be injurious to a very large one. We import about 16,000,000 dozen eggs, which are now free. Of this quantity nearly half go into New England. Under the new bill, eggs will be taxed five cents a dozen. A small number of people along the Canada border may be benefited by this tax, but it will add several hundred thousand dollars to the cost of living of the whole population. The tax on hay is increased 100 per cent. We imported last year about one million dollars' worth of hay, nearly all of which was consumed in New England. This increased tax will put some money into the treasury, where it is not needed, and will take some money from pockets where it is needed; and while it will transfer some from one New England owner to another, in the end it will make the life struggle harder for all. All these things upon which taxes have been increased, New England must buy, because she does not produce them in sufficient quantities to supply the wants of her people; and she will find the strain on her finances doubly severe when by the same cause her expenditures are increased and her income diminished. But it may be said in reply that she has a counterpoise to all this, in the increased prices which the bill insures for her finished manufactures. She will soon find that these increased duties on manufactures, instead of helping her, will call into existence additional rivals in the West and South, where the manufacturer will be nearer to his materials and to his customers. The proposed tariff, instead of protecting her against competition, will create new competition and increase that which she already has.

While production will be increased, consumption will be diminished. The large increase in the cost of manufactures caused by the increase in the cost of the materials, will restrict sales to fewer persons and smaller quantities. The present high rates on woolen goods check the consumption, and the result has been the development of a large shoddy industry, that could never have come into existence if there had been no restriction on the importation of wool. It is now claimed by those engaged in the manufacture of shoddy, that it has fifteen millions of capital invested and gives employment to 100,000 persons. The product, whatever its amount, has taken the place of so much

woolen and worsted manufactures. The increased duties will further develop the rag-picking industry, and that will still further invade the business of the wool manufacturer. The same effect will follow in all manufactures. Increased duties will limit consumption; that will limit production; and that will limit employment and reduce wages.

Another feature of the new bill deserves the serious consideration of New England. The increased duties on finished products will largely reduce the importations we are now receiving even under our present high rates. The increased duty on tin plates is intended to prohibit their importation. This would keep out $21,000,000 of imports. The increased rates on wool and its manufactures are intended to keep them from being imported. These duties would keep out $71,000,000 of foreign goods. The same result is intended by the increases in the cotton, metal, and tobacco schedules. The importation will not be wholly cut off, but in all these it will be largely reduced. That is the object of the bill, and it is declared in its title. It proposes to reduce the revenue by increasing duties and decreasing the importation of the duty-bearing articles. There is no need for increased revenue. The treasury is full to overflowing now. If revenue were needed, it would be obtained by reducing rates nearer to the revenue standard and increasing the importation of revenue-producing articles. There are two methods of reducing revenue. One is to reduce the rates imposed on the imported article below the revenue point; the other is to increase the rates above the revenue point. By the first the importation will be increased; by the second it will be decreased. A duty of one per cent. would produce little revenue, but it would permit a very large importation. A duty of one thousand per cent. would likewise produce little revenue, but it would almost prohibit importation. The latter object is the one intended by the bill. The articles upon which the high duties are levied are to be kept out of the country, to give the market to the domestic manufacturer of similar articles at higher prices. Camel's hair was not taken from the free list and taxed 77 per cent. for revenue, but to keep it out of the country and to permit the wool-grower to supply its place with wool. A duty of $2

per pound was not placed on leaf tobacco to obtain revenue, but to keep the Sumatra leaf out of the country. These ends will be reached just as far as these high rates can accomplish them.

Outside the sugar schedule, there is an increase, estimated on the importation of last year, of about $65,000,000. But the importation of the last fiscal year will not be continued. Importation will be largely reduced, and the revenue will fall far short of that estimated increase. Our imports of merchandise last year amounted to $745,000,000, and our exports to $742,000,000. Both will be much less under the new bill. The reduction in imports will produce a corresponding reduction in exports. New England carries on about one tenth of our foreign trade. When she sees her exports rapidly declining, she will then begin to inquire where she is to find markets for her products. Her only dependence will be the home market, and that she will find oversupplied. Consumption being largely reduced, she must correspondingly reduce her production. She depends on the home market; the home market depends on western and southern farmers; they depend on their customers in Europe; and their customers in Europe depend upon American consumers of their products. Our farmers throughout our whole history have been supplying all the wants of our own people for agricultural products, and then have had a large surplus for which they have had to find a market in foreign countries. The agricultural surplus is increasing faster than the demand in the home market, and the farmer cannot sell because the consumer cannot sell, the new tariff bill not permitting us to buy. And thus our farmers are unhappily in the same condition as the manufacturer. If our farmers have to throw their whole surplus on the home market, that will reduce the prices of the whole agricultural production. A reduction of $100,000,000 on the export of agricultural products would reduce the value of the whole annual output, and our farmers would be to that extent less able to buy the products of the manufacturer. And as New England supplies about one fourth of our manufactures, she would feel the loss of a market for her wares to the amount of many millions. The home market is ten times as valuable to her as the foreign market, and she should watch closely all measures calculated

to impair it. The way to make it able to consume the largest amount of her products, is to permit it to have as many buyers as possible and with all the money they can get; and the way to accomplish that, is to let the world come and buy all our surplus at high prices and pay us for them in the products which they can produce more cheaply than we. When we close our markets to them, we close their market to ourselves. They cannot take our surplus unless we take theirs; and when Congress prohibits the entry of their goods into our markets, they must go elsewhere to trade. We now have a surplus of agricultural products, of manufactures, and of minerals. What shall we do with it? The mills must stop, employment must cease, wages must be reduced, profits must disappear, and business must stand paralyzed in the presence of a congressional pestilence, while the country steps down to a lower round of the ladder of depression.

With a reduction of $100,000,000 in her manufacturing products, how many establishments would be closed in New England? How many of her people would be thrown out of employment? How much reduction would there be in the rate of wages? Into how many homes would hunger look? Does New England realize that she is walking perilously near the edge of the precipice? There is now wide-spread depression in the West and South. Farm values are lower than they have been for years. Farms are mortgaged. Interest is accruing, and the owners have nothing with which to pay. Their markets have been limited, and the crops they raise do not pay cost of production. Further to restrict the sale of their products and to reduce their value, as the new tariff bill proposes, is but to deepen and intensify the distress which is now grievous enough. Bankruptcy and foreclosure are now standing at their gates, and the new tariff bill invites them to enter and take possession. When western and southern farmers fall, New England will fall with them. She has the fate of both in her keeping. It remains to be seen whether she will help those who are trying to help her, or whether she will continue to amuse herself in aiding Pennsylvania iron masters to build a wall around her deserted factories.

ROGER Q. MILLS.

CULTURE AND CURRENT ORTHODOXY.

No careful student of the movement of modern thought can fail to notice three very marked tendencies by which the second half of the present century has been distinguished. Foremost among these is the earnest ethical tone which pervades the utterances of both the apologists and the critics of Christianity. The questions in debate are recognized as possessing an impersonal and universal import, in which all have an equal interest, and the final settlement of which must be of permanent advantage to all. The flippant rationalism of the former century, which labeled Christianity a product of deliberate priestly imposture, and waged a crusade of merciless extinction against all religion, has long since ceased to command respect. No one demands that the idea of God shall be eliminated. With less reliance upon the formal and formidable arguments which once were paraded to prove the divine existence, the theistic conviction is more generally and strongly intrenched than ever. The being of God has become axiomatic for modern thought, and this result has been reached through the development and the ascendancy of the ethical consciousness. The reason in man has given earnest heed to the majesty of the moral imperative. The school of Schleiermacher, represented by Maurice, Kingsley, Robertson, and Stanley, opened the new path, and vindicated for religion a permanent place in human life and history. The feeling of dependence and the sense of duty lying at the basis of all self-knowledge, compelled the recognition of the living God. Agnosticism refuses to be called atheism. It does not deny that God is; it only affirms that man is not competent to declare what he is. It worships the Unknown God, but in so doing it claims that it worships God. And when, with Matthew Arnold, the Supreme Being is described as an energy "which makes for righteousness," there is an immense gain in the ethical affirmation, which calls for hearty recognition, however incomplete such

a definition may seem to be. The drift of modern thought, as any one can discover in our current literature—in newspapers, magazines, and reviews—is not anti-religious, but the reverse.

That the drift is anti-ecclesiastical and anti-dogmatic, is equally certain. On the surface, this may not seem to be true. Sectarian intensity and theological partisanship may appear to be in the ascendant. But beneath the surface waves of denominational activity runs the current of comprehension. The pulpit has almost abandoned polemic utterances. Scores and hundreds of churches would not endure them. They were once the fashion, and public debates on the rites and doctrines of opposing sects were in high favor. We have outgrown all that. The change is partly due to social and commercial causes. The Calvinist has fallen in love with the Methodist, and has not found the heresy to be very pernicious. The Trinitarian has entered into partnership with the Unitarian, and discovered the latter to be the soul of honor. Domestic and business relations have dulled the edge of sectarian rancor, and have prepared the way for a mental temper in which the things whereon good men agree are accented, while their differences are held in abeyance. Meanwhile, the essential content of religion has become more sharply distinguished on the one hand from church practices, which are only symbolic aids to religion, and on the other hand from theology, which is a philosophical analysis and synthesis of the conceptions which underlie religion and are involved in it. Naturally, in the revolt against an excessive and tyrannical dogmatism, which identified religion with subscription to a creed, there has been a tendency to deny that religion contains any intellectual element whatever, and to resolve it into vague pious sentiment, a nameless awe, an undefined and undefinable emotion. But neither can the pendulum rest at that extremity of the arc. The feelings are aroused only by the perception of their appropriate objects. The intellectual act precedes the emotional state. And the feelings are normal, quickening, intense, and permanent, only as the mental perceptions are natural, vital, clear, and continuous. Religion, as reverential and filial feeling, embodying itself in worship and trust, and manifesting itself in acts of philanthropy, is rooted in certain conceptions of God and of man, which when

formulated constitute a creed. Religion has and must have its theology, its doctrine of what God is and what man is, though it may decline to speculate on the Trinity, and refuse assent to a doctrine of sin which makes every man guilty of Adam's apostasy. Impatience with dogma is not necessarily the repudiation of doctrine. The truest reason may break with the logical refinements of the schools. The anti-dogmatic drift of our time does not impress me as antagonizing intelligence in religion, as hostile to analysis, definition, and systematic arrangement, but as intent upon calling a halt upon speculative audacity, and insisting that theology, like science and philosophy, shall deal only with what can be accurately known. It demands the rigid application of the Baconian method, in which facts are the ground-work of theory. It demands a simpler creed, but it wants a creed, and it would repudiate any creed which lacked the quality of comprehension.

Nothing is more characteristic of the culture of to-day, as compared with the literary temper of the preceding century, than its reverent attitude toward Jesus Christ. The Carpenter of Nazareth has won respect as the noblest, the purest, and the most helpful of all the world's religious teachers. To tear his name out of history, Renan declares, would be to rend the world to its foundations. In the March number of the FORUM, Mr. A. K. Fiske, while speaking of the clergy with scant courtesy and in no very complimentary phrase, and emphatically insisting that all supernatural and miraculous elements must be eliminated from traditional Christianity, speaks of "the wonderful psychological endowments of Jesus of Nazareth," and of "the magnetic ascendancy which he acquired over those who came under his personal influence"; and he proceeds to declare that the race is not likely to have a higher exemplar of the large doctrine of the fatherhood of God, the brotherhood of man, purity of life, sacrifice of self, and devotion to common good, "than the marvelous man of Nazareth, who announced it with such confident and persuasive words, and who died a victim to the world's unreadiness to accept it." The man who could write these lines is not so much at variance with current orthodoxy as he imagines. He already holds the essential faith, and is dissentient only in his

critical assumptions and conclusions. And his positive attitude to Christ is fairly representative of the best literary judgment, which still maintains a hostile attitude to the organized church and to her dogmatic deliverances. The shallow rationalism of the eighteenth century freely charged Jesus with deliberate imposture. It was a distinct advance when Strauss, more than fifty years ago, in his "Life of Jesus," resolved the whole story into a skillfully-elaborated myth, historically false but philosophically and essentially true—a nursery fable with an impressive and wholesome moral. The Hegelian logic clung to the *idea* of the Incarnation, while rejecting the fact. The Tübingen criticism was a historical reaction against this speculative extreme; and Baur paved the way for a reconstruction of early Christian history by calling attention to the fact that the oldest documentary evidence was from the hands of Paul, whose four great epistles, genuine beyond all possible cavil, must be the point of departure in any intelligent and reliable judgment upon the origin and primitive content of the Christian faith. He magnified to the utmost the divergent conceptions of the gospel held by Peter and Paul. A fierce and protracted contest ensued, in which the latter finally triumphed, the issue being a supplementary literature, in the gospels and the Acts, which was declared to bear on every page the marks of compromise. The procedure was revolutionary, and so has come to be known as destructive criticism. But it was not primarily intended to be negative; it was designed to be positive and constructive. It sought to reproduce the living history of those early days, to pierce through the ferment of the apostolic age, and to secure once more a clear perception of the great central figure by whom the religious revolution was inaugurated and in whom it centered. The path broken by Strauss has been eagerly pursued, and a varied and voluminous literature is the result. Baur's labors have been supplemented, corrected, and enlarged, by his pupils and successors; and the Christian church is deeply indebted to them for their patient and scholarly researches. The result has been a substantial recognition, on all sides, that the gospels contain a fairly authentic and reliable report of the main facts in the life of Jesus Christ and of his teachings. The present debate concerns the supernatural and

miraculous elements in the story, which many are disposed to regard as legendary accretions, while even Baur admitted that the faith of the early Christians in the actual resurrection of Jesus, and Paul's conversion to the same, were incapable of "psychological analysis and explanation." The time has come when it should be freely recognized that modern criticism is at heart reverent and Christian, not flippant, atheistic, and anti-Christian. Its face is toward the manger and the cross, and the wonderful life which lay between them.

What, now, as over against this attitude of modern culture, is the contention of the current orthodoxy? And by the current orthodoxy I mean neither that system of doctrinal interpretation which is embodied in the creeds, nor what in some quarters is called the New Theology. The creeds are valuable historical documents, but they are no more authoritative for theology than the text books of a hundred years ago are authoritative for science. Even the youngest of the great creeds, the Westminster Confession, is being hammered to pieces in the house of its friends. The New Theology, on the other hand, is hardly more than a name. Its fundamental postulates are the monopoly of no school, but the common inheritance of Christendom. There is a living orthodoxy, a *consensus* of Christian critical judgments, which on the one hand maintains its fellowship with the great past, and on the other hand deals with the utmost freedom with all great names and with all historic creeds. It is perhaps an ambitious task to venture upon a general description of the current orthodoxy, the fluent and vital theology of the present, as it is held by the living expounders of the Christian faith; but this must be done if there is to be any clear understanding of the problem which confronts the earnest student of our day. The outline may be restricted to five great questions: the problem of the supernatural, the place and authority of the Bible, the Incarnation, the Atonement, and the eternal destiny of man. What saith the current orthodoxy on these themes?

The first question is the one on which, perhaps, the lines are most sharply drawn. And yet, even here, the divergence is not as serious as it appears to be. In Mr. Fiske's article, the repudiation of every vestige of inspiration, and the summary dismissal

of all "miraculous interposition in human affairs," are qualified by recognizing "a reasonable theory of providential supervision." That, he declares, remains untouched. And I reply, that covers the essential claim of the current orthodoxy. Affirmation of a divine providence, by way of supervision, is recognition of the supernatural. "Providential supervision" implies personal and effective agency, however noiseless and inscrutable its methods may be. If once it be granted that human life and history are not the products of isolated human energy, but that the latter is charged and guided by the energy of God, the disputants already occupy common ground. "Providential supervision" implies some kind of communication and coöperation; in other words, it concedes the general fact of revelation. The questions of inspiration and of miracles are of subordinate importance under this main concession, and may be left to free and friendly discussion. They deal with the method of revelation, the periods and evidences of its disclosure—purely historical questions which can be settled only by historical studies. Current orthodoxy maintains that the general and universal revelation took a special form among the Hebrews, moved along continuously-progressive lines in this people, and reached its highest manifestation in Jesus Christ, whose resurrection it claims to be attested by indubitable historical evidence, and whose recorded miracles it regards as most reasonable concomitants of his ministry and mission.

But what about inspiration, and the inerrancy and infallibility of the Scriptures? Current orthodoxy does not teach verbal inspiration. It recognizes that the Bible is not a mechanical product. It emphasizes the historical setting of every book, and the definite historical meaning of every message. It concedes the pictorial and poetic drapery in the first chapters of Genesis, the dramatic cast of the book of Job, the allegorical features of many other parts of the sacred volume. It does not stamp as blasphemous even the extreme positions of Wellhausen, subversive as they are of traditional views of revelation, for the main outcome of Hebrew discipline remains the same under any theory. It simply insists that the compilers of the Scriptures were honest and trustworthy men, who were not engaged in literary fraud, and who are to be treated as honest and well-

meaning witnesses. The doctrine of inspiration is not handicapped by the denial that many books of the Bible are composite in structure, and have received several redactions, though the evidence for these claims is closely scrutinized and in many cases is regarded as trivial. Least of all is inspiration regarded as suspending the personal activity of the writers. They were not automata, but living men; and the Scriptures are the most vital of all literatures. Practically, current orthodoxy regards the Bible as a true historical record of God's revelation of himself to the Hebrews, and through them to all men, and as authoritative in its ethical content. On the method of that revelation, the technical question of inspiration, current orthodoxy is agnostic.

The wonderful psychological endowments and the magnetic influence of Jesus Christ, the purity of his life, the loftiness of his teachings, and his self-sacrificing devotion, are matters on which all are agreed. To this may be added the practically unanimous verdict of the best critical judgment that the gospels are authentic and trustworthy narratives. Christ is freely reverenced as the model man. Current orthodoxy maintains that in such a case he must be allowed to give an account of himself, and that his personal testimony on a matter of such importance may not be lightly treated. And when he declared that he had authority to forgive sin, that men must bear his yoke, that his words should never pass away, that all judgment was committed to him, that he was conscious of personal existence in Abraham's day, that he had come down from heaven, and remembered the glory which he had with the Father before the world was, the mystery of the Incarnation confronts us. I know that some of these declarations are from the fourth gospel; but the conclusions of such independent critics as Ezra Abbot and Bernhard Weiss justify me in quoting them as attributed by the Apostle John to his Master; and the undoubted Pauline epistles attribute a similar preëminence to Jesus. An extraordinary man he certainly was, unique in his endowments; and no theory covers all the facts which does not take account of his matured consciousness of a peculiar relation to God. Beyond this, current orthodoxy does not venture. It has no theory of the Incarnation. It makes no dogmatic statement concerning the union of the two

natures, which Melanchthon, on his dying bed, confessed that he did not understand. Current orthodoxy holds fast to the man Christ Jesus, to the reality of his human life, to his moral perfection as the result of a real moral conflict, and to the presence in him, when his consciousness was fully matured, of a peculiar relation to the uncreated Godhead; but it ventures upon no dogmatic utterances as to the nature of that relation. It has listened to every explanation which has ever been given, and it rejects every one of them. Its philosophic attitude on the problem is agnostic.

The same thing is true as to the Atonement. That the death of Christ has made a unique impression is beyond a shadow of doubt. It has proved to be a fact of unique and tremendous moral energy. The cross has become a symbol of power and glory. It has made self-sacrifice the highest of virtues, and has made suffering for righteousness' sake sacred forever. It has served to give universal currency to the idea of the fatherhood of God and the brotherhood of man. The reconciliation is a fact. God is regarded as loving men with all his heart, and all men are recognized as owing one another the duties of brotherhood; and of all this the death of Christ is the symbol and the seal. The cross has brought God to man, and it is beating down the hedges by which men have been kept apart. It is a message of peace. Passing beyond this general statement, the dogmatic interpretation of the Atonement runs into the substitutionary, the governmental, the moral, and the personal. The debate leads into abstract discussions of sin, law, penalty, justice, and the like, without any very clearly-marked and generally-accepted results. That Christ died for our sins, according to the Scriptures; that in him we have redemption, even the forgiveness of sins; that he is our high priest, our prince of peace, and the captain of our salvation, current orthodoxy maintains; but as to any theory of the great and joyful reconciliation, it is agnostic.

It remains only that a word be said upon the dark problem of eternal punishment. The references to this awful theme in current orthodoxy are infrequent and guarded. Many suppose that it no longer commands earnest belief. Current orthodoxy is silent because it finds so little to say. The future is not the main burden of the revelation in Scripture. The Bible deals

with man as he now is, and summons to an immediate repentance and to a present salvation. Current orthodoxy agrees with Mr. Fiske when he says that the proper work of the church is to proclaim "salvation from sin in this world, and not from punishment in another." It concentrates attention upon the present, not upon the future—upon character, and upon destiny only as dependent upon character. It feels, too, that the most satisfactory solution of the problem of moral evil is the final restoration of all souls unto holiness. It blames no one for entertaining such a hope; but it dares not make such a proclamation, when it remembers that man is a free agent, that moral law is unchangeable, and that Christ speaks of a sin which hath never forgiveness. The current orthodoxy cannot avoid recognizing the second and eternal death as possible, and as inevitable under certain conditions; but on the questions as to what constitutes the terrible penalty, and upon whom and how many it is likely to fall, it maintains the agnostic attitude, with full confidence that God is no respecter of persons, that Christ died for all men, that the Spirit of grace and of redemption is universally operative, and that the Judge of all the earth will do right.

Here are the two terms of the comparison. If modern culture and the current orthodoxy have been fairly sketched, it is pertinent to ask the question, How serious is the breach between them? To me, at least, it seems to be a thin and vanishing line; and the hope of a coalescence in the near future appears to me well founded. It cannot be otherwise. For reason seeks the truth, and all truth is sacred and binding upon human conduct; while Christianity is the religion of holiness, and the germinant energy in holiness is veracity, a truth-seeking, truth-loving, truth-compelling temper.

A. J. F. Behrends.

FORMATIVE INFLUENCES.

It was about four years before the great upheaval of beliefs in England, which was partly caused and partly disclosed by the publication of the "Essays and Reviews," in 1860, that I entered Trinity College, Dublin. I had then a strong leaning toward theological studies, and looked forward to a peaceful clerical life in a family living near Cork; and in addition to the ordinary university course, I went through that appointed for divinity students. I found my life at the university one of more than common intellectual activity, for although circumstances and temperament made me perhaps culpably indifferent to college ambitions and competitions, I soon threw myself with intense eagerness into a long course of private reading, chiefly relating to the formation and history of opinions. The great High Church wave which had a few years before been so powerful, had been broken when Newman and many other leaders of the party had passed to Catholicism. Darwin and Herbert Spencer had not yet risen above the horizon. Mill was in the zenith of his fame and influence. The intellectual atmosphere was much agitated by the recent discoveries of geology, by their manifest bearing on the Mosaic cosmogony and on the history of the Fall, and by the attempts of Hugh Miller, Hitchcock, and other writers to reconcile them with the received theology. In poetry, Tennyson and Longfellow reigned, I think with an approach to equality which has not continued. In politics, the school of orthodox political economy was almost unchallenged. In spite of the protests of Carlyle, all sound Liberals in England then desired to restrict as much as possible the functions of government, and to enlarge as much as possible the sphere of individual liberty; and they regarded unrestrained competition and inviolable contracts as the chief conditions of material progress.

The first great intellectual influence which I experienced was,

I believe, that of Bishop Butler, who was at that time probably studied more assiduously at Dublin than in any other university in the Kingdom. There were few sermons in the college chapel in which some allusion to his writings might not be found, and few serious students whose modes of thought were not at least colored by his influence. That influence now appears to me to have been not only various, but even in some measure contradictory. The "Analogy" is perhaps the most original, if not the most powerful, book ever written in defense of the Christian creed; but it has probably been the parent of much modern Agnosticism, for its method is to parallel every difficulty in revealed religion by a corresponding difficulty in natural religion, and to argue that the two must stand or fall together. Butler's unrivaled sermons on human nature, on the other hand, have been essentially conservative and constructive, and their influence has been at least as strong on character as on belief. Their doctrine is that consciousness reveals in the inner principles of our being a moral hierarchy, "a difference in nature and kind altogether distinct from strength"; and that among these principles conscience has, by the very structure of our nature, a recognized supremacy or guiding authority which clearly distinguishes it from all others.

> **"The principle of reflection or conscience being compared with the various appetites, affections, and passions in men, the former is manifestly supreme and chief, without regard to strength. . . . From its very nature it manifestly claims superiority over all others, so that you cannot form a notion of this faculty, conscience, without taking in judgment, direction, superintendency. To preside and govern, from the very economy and constitution of man, belongs to it. Had it strength as it has right, it would govern the world."**

It was a noble philosophy, well fitted to strengthen and elevate the character, and it has supported many amid the dissolution of positive beliefs. Utilitarian theories of morals move very smoothly as long as their only task is to define the course which it is in the interests of society that each man should pursue. They are less successful in furnishing any firm and adequate reason why a man should pursue that course when individual interests and individual passion are opposed to it. It is the merit

of the schools of Kant and of Butler, that they raise the idea of duty above all the calculations of self-interest, and make it the supreme and guiding principle of life.

Among living men, the strongest intellectual influence at that time in Dublin was, I think, Whately, our archbishop, an original and powerful thinker who has scarcely obtained a place in the literary and intellectual history of his time commensurate with the wide and deep influence he undoubtedly exercised. For this there are many reasons. Unlike the High Church leaders who flourished with him at Oxford in the second quarter of the nineteenth century, he never identified himself with any organized party or school of thought, and he thus deprived himself of many echoes and of much support. It was, indeed, one of his first principles that there is no more fatal obstacle to the discovery of truth than the deflecting influence of party and system, and that the jealous maintenance of an independent judgment is the first element of intellectual honesty. Few considerable writers have appealed less to common passions or wide sympathies; and the only passion—if it can be called so—that appears strongly in his writings, is the love of truth for its own sake, which is the rarest and highest of all. He was accustomed to speculate much upon that strange power of intellectual magnetism which enables some men to draw others to their views apart from any process of definite reasoning; and he acknowledged with truth that he was wholly destitute of it; that he had never produced any effect which could not be clearly accounted for, or altered any judgment except by distinct reasons. As a writer, his style, though wholly without grace, was admirable in its lucidity. He had a singular felicity of illustration, and especially of metaphor, and a rare power of throwing his thoughts into terse and pithy sentences; but his many books, though full of original thinking and in a high degree suggestive to other writers, had always a certain fragmentary and occasional character, which prevented them from taking a place in standard literature. He was conscious of it himself, and was accustomed to say that it was the mission of his life to make up cartridges for others to fire. The little volume of "Miscellanies," including his commonplace book and his notes for his books, which was published by

his daughter, exhibits with great clearness the character of his mind. Though a very candid and, in the best sense of the word, a very tolerant man, and an excellent scholar, he had, I think, little power of reproducing the modes of thought of men whose mental structure was widely different from his own, or of entering into the intellectual conditions of other ages; but he touched a large circle of subjects, social, political, and even scientific, as well as moral and religious, with an original and most independent judgment; and he raised greatly the moral standard of love of truth and the intellectual standard of severe reasoning wherever his influence extended. He delighted in that fine saying of Hobbes that, "words are the counters of the wise man, but the money of the fool"; he believed that most controversies might be resolved into verbal ambiguities; and his hatred of vagueness, grandiloquence, affected obscurity, and rhetorical exaggeration exercised a very useful influence over young men. He was also a most attentive and sagacious observer of human nature, and few modern writers have written so wisely on the diversities and the management of character and on the science of life. In this respect he had a strong affinity to Bacon—the Bacon not of the "Organon," but of the "Essays"—and perhaps still more to Benjamin Franklin. In theology he challenged the severest inquiry, and believed that if honestly pursued it would lead only to orthodox belief. "A good man," he once wrote, "will indeed wish to find the evidence of the Christian religion satisfactory; but a wise man will not for that reason think it satisfactory, but will weigh the evidence the more carefully on account of the importance of the question."

His strongest antipathy was to the teaching of the Oxford "Tracts," and he wrote about them with great severity, but more from the moral than the intellectual side. He believed the Tractarian doctrines of "reserve" and "economy" to be essentially disingenuous; he considered that there was good reason to conclude that leading members of the Oxford school had remained in the Church of England for a considerable time after they had adopted the Roman theology, had used language deliberately intended to mask their position, and had employed their influence as English clergymen to sap the English Church; and he

especially denounced as the grossest dishonesty the attempt that was made in Tract XC. to show that a man was justified in subscribing to the Articles of the Church of England and at the same time holding everything laid down by the Council of Trent, "though the Articles were expressly drawn up to condemn the authoritative teaching of the Roman Church, and after the Council of Trent had held 22 out of its whole number of 25 sessions." The quibbling, special-pleading, equivocating mind which is consciously or half-consciously endeavoring by subtle distinctions to maintain an untenable position, was of all things the most abhorrent to him, and while the Evangelicals denounced the Tractarians as leading men to Rome, Whately, perhaps alone among his contemporaries, steadily predicted that their teachings would be followed by a great period of religious skepticism. This, he said, would be the result of the discredit they were throwing on the evidential school, of their habit of coupling ecclesiastical with Scripture miracles, and of their doctrine that it is the function of faith to supply the missing links of imperfect evidence and to impart the character of certainty to propositions which in reason rest only on probabilities. He himself was of the school of Grotius and Paley, and believed that simple historical evidence established supernatural facts. This subject long held a foremost place in my thoughts and studies, and I afterward wrote much upon it in connection with the history of witchcraft and the miracles of the Saints.

I owed much to Whately, but I was studying concurrently with him teachers of very opposite schools, among others Coleridge, Newman, and Emerson in English; Pascal, Bossuet, Rousseau, and Voltaire in French. Locke's writings formed part of the college course, and I became very familiar with them, and fully shared Hallam's special admiration for the little treatise "On the Conduct of the Understanding," while Dugald Stewart, Mackintosh, and Mill opened out wide and various vistas in moral philosophy. The following passage from Coleridge, which I chose as the motto of almost my first published writing, exercised so great an influence over my later studies, and shows so happily the direction in which I was endeavoring to turn my mind, that I may be excused for quoting it at length:

"Let it be remembered by controversialists on all subjects, that every speculative error which boasts a multitude of advocates has its golden as well as its dark side; that there is always some truth connected with it, the exclusive attention to which has misled the understanding; some moral beauty which has given it charms for the heart. Let it be remembered that no assailant of an error can reasonably hope to be listened to by its advocates, who has not proved to them that he has seen the disputed subject in the same point of view and is capable of contemplating it with the same feelings as themselves; for why should we abandon a cause at the persuasion of one who is ignorant of the reasons which have attached us to it?"

Adopting an illustration which had been employed by Bossuet for another purpose, I came to believe that religious systems resemble those pictures occasionally seen in the museums of the curious, which appear at first to be mere incongruous assemblages of unconnected and unmeaning figures, till they are regarded from one particular point of view, when these figures immediately mass themselves into a regular form, and the whole picture assumes a coherent and symmetrical appearance. To discover in each system this point of view; to cultivate that peculiar form of imagination which makes it possible to realize how different forms of opinions are held by their more intelligent adherents, appeared to me the first condition of understanding them.

In this method of inquiry I was, at a little later period, much aided by the writings of Bayle, a great critic who brought to the study of opinions an almost unrivaled knowledge, and one of the keenest and most detached of human intellects. Gradually, however, by a natural and insensible process I passed into the habit of examining opinions mainly from an historical point of view—investigating the circumstances under which they grow up; their relation to the general conditions of their time; the direction in which they naturally develop; the part, whether for good or ill, which during long spaces of time they have played in the world. It was first of all in connection with the Roman Catholic controversy, with which we were much occupied in Ireland, that I learnt to pursue this course. Of the enormous and essential difference between matured Catholicism and the Christianity of the New Testament, I never doubted, and my convictions were much deepened by long travels in Italy, France, and Spain, during which I endeavored to study carefully Catholicism in its

actual workings as a popular religion, and not as it appears clarified and rationalized in such books as the "Exposition," by Bossuet. I often asked myself who could have imagined from a perusal of the New Testament, that Christianity was intended to be a highly-centralized monarchy, governed with supreme divine authority by the Bishop of Rome; that this bishop was to be connected, not with the great author of the Epistle to the Romans, but with St. Peter; that the figure which was to occupy the most prominent place in the devotions and imaginations of millions of Christian worshipers was to be the Virgin Mary, who is not so much as mentioned in the Epistles; that in the immediate neighborhood, and with the full sanction of the highest ecclesiastical authorities, graven images were to be employed in devotion as conspicuously as in a pagan temple, particular images being singled out from all others for particular devotion by special indulgences and by special miracles? I soon convinced myself that popular Catholicism, as it exists in southern Europe and as it has existed through a long course of centuries, is as literally polytheistic and idolatrous as any form of paganism, though it has many beauties, and though much of its very mingled influence has been for good. In the teaching of my early youth, this transformation of Christianity was described as the great predicted apostacy, the mystery of iniquity, the work of Anti-Christ among mankind. Under the influence of the historic method it assumed a different aspect, and the mystery became very explicable. Hobbes had struck the key note in a passage of profound truth as well as of admirable beauty:

> "If a man consider the original of this great ecclesiastical dominion, he will easily perceive that the Papacy is no other than the ghost of the deceased Roman Empire, sitting crowned upon the grave thereof."

Few evolutions in history, indeed, can be more clearly traced than the successive stages through which Rome, by a gradual and very natural process, obtained the primacy of Christendom. In the condition of Europe, again, at the time of the downfall of the Roman Empire, the invasion, the triumph, and the rapid conversion of the barbarians, the chief causes of the materializing transformation which Christian ideas underwent appeared abundantly evident; and it became clear to me that some such trans-

formation was inevitable, and essential to their enduring influence. Was it possible, I asked myself, that in ages of anarchy and convulsion, any religion resembling Protestant Christianity could have prevailed among great masses of wild and ignorant barbarians, with all the associations and mental habits of idolaters, at a time when neither rag paper nor printing was invented, and when a wide diffusion of the Bible was absolutely impossible? But such methods of reasoning could not stop there. I was naturally led to consider how different are the measures of probability, the predispositions toward the miraculous, the canons of evidence and proof, the standards and ideals of morals in different ages, and how largely these differences affect the whole question of evidence. I began to realize the existence of climates of opinion; to observe how particular forms of belief naturally grow and flourish in certain stages of intellectual development, and fade when these conditions have changed; how much that is called apostacy and imposture is in reality anachronism, the survival in one age of forms of belief that were the appropriate product of an earlier one.

A writer of extraordinary brilliancy and power was at this time exercising a great influence either of attraction or repulsion on all serious students of history. Those who are old enough to remember the appearance of the first volume of Buckle's "History," in 1857, and of the second volume, in 1861, will remember also how rapidly and how passionately it divided opinion. It was in truth a book in which extraordinary merits were balanced by extraordinary defects. On the special subject of the growth of religions, which most interested me, it was peculiarly deficient, for with all his great gifts Buckle was almost color-blind to the devotional and reverential aspect of things, and he had little more power than Whately of projecting himself into the beliefs, ideals, and modes of thought of other men and ages. His unqualified, undiscriminating contempt for the ages of superstition is the more remarkable, because fifteen years before the appearance of his first volume, Comte, with whom Buckle had some affinity, and for whom he expressed great admiration, had been placing those ages on a pinnacle of extravagant eulogy. His doctrine that there is no real progress in moral ideas and no real

history of morals, I have always believed to be profoundly untrue, and to have vitiated a large part of his conclusions; and although he rendered valuable service in showing by ample illustrations that the capital changes in history are much less due to the great men who directly effected them than to the long train of intellectual, political, or industrial tendencies that had prepared them, he pushed this, like many of his other generalizations, to exaggeration and even to extravagance. Individuals, and even accidents, have had a great modifying and deflecting influence in history, and sometimes the part they have played can scarcely be overestimated. If, as I have elsewhere said, a stray dart had struck down Mohammed in one of the early skirmishes of his career, there is no reason to believe that the world would have seen a great military and monotheistic religion arise in Arabia, powerful enough to sweep over a large part of three continents, and to mold during many centuries the lives and characters of about a fifth part of the human race. In one respect, too, Buckle was singularly unfortunate in the time in which he appeared. From the days of Bacon and Locke to the days of Condillac and Bentham, it had been the tendency of advanced liberal thinkers to aggrandize as much as possible the power of circumstances and experience over the individual, and to reduce to the narrowest limits every influence that is innate, transmitted, or hereditary. They represented man as essentially the creature of circumstances, and his mind as a sheet of blank paper on which education might write what it pleased. Buckle pushed this habit of thought so far that he even questioned the reality of such an evident and well-known fact as hereditary insanity. But only two years after the appearance of the first volume of the "History of Civilization," Darwin published his "Origin of Species," which gradually effected a revolution in speculative philosophy almost as great as it effected in natural science; and from that time the supreme importance of inborn and hereditary tendencies has become the very central fact in English philosophy. It must be added that Buckle had many of the distinctive faults of a young writer; of a writer who had mixed little with men, and had formed his mind almost exclusively by solitary, unguided study. He had a very imperfect

appreciation of the extreme complexity of social phenomena, an excessive tendency to sweeping generalizations, and an arrogance of assertion which provoked much hostility. His wide and multifarious knowledge was not always discriminating, and he sometimes mixed good and bad authorities with a strange indifference.

This is a long catalogue of defects, but in spite of them Buckle opened out wider horizons than any previous writer in the field of history. No other English historian had sketched his plan with so bold a hand, or had shown so clearly the transcendent importance of studying not merely the actions of soldiers, politicians, and diplomatists, but also those great connected evolutions of intellectual, social, and industrial life on which the type of each succeeding age mainly depends. To not a few of his contemporaries he imparted an altogether new interest in history, and his admirable literary talent, the vast range of topics which he illuminated with a fresh significance, and the noble enthusiasm for knowledge and for freedom that pervades his work, made its appearance an epoch in the lives of many who have passed far from its definite conclusions. The task which he had undertaken was almost too vast for the longest life, and when he died at Damascus, in 1862, he had not yet completed his 40th year, and his judgment was probably still far from its full maturity. A few lines of Pliny which I wrote on the title page of his history, will suffice to show the feelings with which I heard of his death:

> "*Mihi autem videtur acerba semper et immatura mors eorum qui immortale aliquid parant. Nam qui voluptatibus dediti quasi in diem vivunt, vivendi causas quotidie finiunt; qui vero posteros cogitant et memoriam sui operibus extendunt, his nulla mors non repentina est, ut quæ semper inchoatum aliquid abrumpat.*"

I do not purpose to pursue these recollections further. I had drifted far from my Cork living and very decisively into the ways of literature, and after I left the university I spent about four years on the Continent. I read much in foreign libraries, and I also derived great profit as well as keen pleasure from the study of Italian art, which throws an invaluable light on the branches of history I was then investigating. In its earlier phase especially, before the sense of beauty dominates over the

idea, art represents with a singular fidelity not only the religious beliefs of men, but also the far more delicate and evanescent shades of their realizations, ideals, and emotions.

The result of those years of study was my "History of the Spirit of Rationalism in Europe," which appeared in the early part of 1865. With many defects, it had at least the merit of describing with great sincerity the process by which the opinions of its author had been formed, and to this sincerity it probably owed no small part of its success.

W. E. H. Lecky.

THE LIMITS OF REALISM IN FICTION.

In the last new Parisian farce, by M. Sarcey's clever young son-in-law, there is a conscientious painter of the realistic school who is preparing for the Salon a very serious and abstruse production. The young lady of his heart says, at length: "It's rather a melancholy subject; I wonder you don't paint a sportsman, crossing a rustic bridge, and meeting a pretty girl." This is the climax, and the artist breaks off his relations with Young Lady No. 1. Toward the end of the play, while he is still at work on his picture, Young Lady No. 2 says: "If I were you, I should take another subject. Now, for instance, why don't you paint a pretty girl, crossing a rustic bridge, and met by a sportsman?" This is really an allegory, whether M. Gandillot intends it or not. Thus have those charming, fresh, ingenuous, ignorant, and rather stupid young ladies, the English and American publics, received the attempts which novelists have made to introduce among them what is called, outside the Anglo-Saxon world, the experimental novel. The present writer is no defender of that class of fiction; least of all is he an exclusive defender of it; but he is tired to death of the criticism on both sides of the Atlantic, which refuses to see what the realists are, whither they are tending, and what position they are beginning to hold in the general evolution of imaginative literature. He is no great lover of what they produce, and most certainly does not delight in their excesses; but when they are advised to give up their studies and paint pretty girls on rustic bridges, he is almost stung into partisanship. The present article will have no interest whatever for persons who approve of no more stringent investigation into conduct than Miss Yonge's, and enjoy no action nearer home than Zambeziland; but to those who have perceived that in almost every country in the world the novel of manners has been passing through a curious phase, it may possibly not be uninteresting to be called upon to inquire what the

nature of that phase has been, and still more what is to be the outcome of it.

So far as the Anglo-Saxon world is concerned, the experimental or realistic novel is mainly to be studied in America, Russia, and France. It exists now in all the countries of the European Continent, but we know less about its manifestations there. It has had no direct development in England, except in the clever but imperfect stories of Mr. George Moore. Ten years ago the realistic novel, or at all events the naturalist school, out of which it proceeded, was just beginning to be talked about, and there was still a good deal of perplexity, outside Paris, as to its scope and as to the meaning of its name. Russia, still unexplored by the Vicomte de Vogüé and his disciples, was represented to western readers solely by Turgeneff, who was a great deal too romantic to be a pure naturalist. In America, where now almost every new writer of merit seems to be a realist, there was but one, Mr. Henry James, who, in 1877, had inaugurated the experimental novel in the English language, with his "American." Mr. Howells, tending more and more in that direction, was to write on for several years before he should produce a thoroughly realistic novel.

Ten years ago, then, the very few people who take an interest in literary questions were looking with hope or apprehension, as the case might be, to Paris, and chiefly to the study of M. Zola. It was from the little villa at Médan that revelation on the subject of the coming novel was to be expected; and in the autumn of 1880 the long-expected message came, in the shape of the grotesque, violent, and narrow, but extremely able volume of destructive and constructive criticism called "*Le Roman Expérimental.*" People had complained that they did not know what M. Zola was driving at; that they could not recognize a "naturalistic" or "realistic" book when they saw it; that the "scientific method" in fiction, the "return to nature," "experimental observation" as the basis of a story, were mere phrases to them, vague and incomprehensible. The Sage of Médan determined to remove the objection and explain everything. He put his speaking-trumpet to his lips, and, disdaining to address the crassness of his countrymen, he shouted his sys-

tem of rules and formulas to the Russian public, that all the world might hear.

In 1880 he had himself proceeded far. He had published the Rougon-Macquart series of his novels, as far as "*Une Page d'Amour.*" He has added to the bulk of his works since then, with six or seven novels, and he has published many forcible and fascinating and many repulsive pages. But since 1880 he has not altered his method or pushed on to any further development. He had already displayed his main qualities—his extraordinary mixture of versatility and monotony, his enduring force, his plentiful lack of taste, his cynical disdain for the weaknesses of men, his admirable constructive power, his inability to select the salient points in a vast mass of observations. He had already shown himself what I must take the liberty of saying that he appears to me to be, one of the leading men of genius in the second half of the nineteenth century, one of the strongest novelists of the world; and that in spite of faults so serious and so eradicable that they would have hopelessly wrecked a writer a little less overwhelming in strength and resource. Zola seems to me to be the Vulcan among our later gods, afflicted with moral lameness from his birth, and coming to us sooty and brutal from the forge, yet as indisputably great as any Mercury-Hawthorne or Apollo-Thackeray of the best of them. It is to Zola, and to Zola only, that the concentration of the scattered tendencies of naturalism is due. It is owing to him that the threads of Flaubert and Daudet, Dostoiefsky and Tolstoi, Howells and Henry James can be drawn into anything like a single system. It is Zola who discovered a common measure for all these talents, and a formula wide enough and yet close enough to distinguish them from the outside world and bind them to one another. It is his doing that for ten years the experimental novel has flowed in a definite channel, and has not spread itself abroad in a thousand whimsical directions.

To a serious critic, then, who is not a partisan, but who sees how large a body of carefully-composed fiction the naturalistic school has produced, it is of great importance to know what is the formula of M. Zola. He has defined it, one would think, clearly enough, but to see it intelligently repeated is rare indeed.

It starts from the negation of fancy—not of imagination, as that word is used by the best Anglo-Saxon critics, but of fancy—the romantic and rhetorical elements that novelists have so largely used to embroider the home-spun fabric of experience with. It starts with the exclusion of all that is called "ideal," all that is not firmly based on the actual life of human beings, all, in short, that is grotesque, unreal, nebulous, or didactic. I do not understand Zola to condemn the romantic writers of the past; I do not think he has spoken of Dumas *père* or of George Sand as Mr. Howells has spoken of Dickens. He has a phrase of contempt—richly deserved, it appears to me—for the childish evolution of Victor Hugo's plots, and in particular of that of "*Notre Dame de Paris*"; but, on the whole, his aim is rather to determine the outlines of a new school than to attack the recognized masters of the past. If it be not so, it should be so; there is room in the Temple of Fame for all good writers, and it does not blast the laurels of Walter Scott that we are deeply moved by Dostoiefsky.

With Zola's theory of what the naturalistic novel should be, it seems impossible at first sight to quarrel. It is to be contemporary; it is to be founded on and limited by actual experience; it is to reject all empirical modes of awakening sympathy and interest; its aim is to place before its readers living beings, acting the comedy of life as naturally as possible. It is to trust to principles of action and to reject formulas of character; to cultivate the personal expression; to be analytical rather than lyrical; to paint men as they are, not as you think they should be. There is no harm in all this. There is not a word here that does not apply to the chiefs of one of the two great parallel schools of English fiction. It is hard to conceive of a novelist whose work is more experimental than Richardson. Fielding is personal and analytical above all things. If France points to George Sand among its romanticists, we can point to a realist who is greater than she, in Jane Austen. There is not a word to be found in M. Zola's definitions of the experimental novel that is not fulfilled in the pages of "Emma"; which is equivalent to saying that the most advanced realism may be practiced by the most innocent as well as the most captivating of novelists. Miss

Austen did not observe over a wide area, but within the circle of her experience she disguised nothing, neglected nothing, glossed over nothing. She is the perfection of the realistic ideal, and there ought to be a statue of her in the vestibule of the forthcoming *Académie des Goncourts*. Unfortunately, the lives of her later brethren have not been so sequestered as hers, and they, too, have thought it their duty to neglect nothing and to disguise nothing.

It is not necessary to repeat here the rougher charges which have been brought against the naturalist school in France—charges which in mitigated form have assailed their brethren in Russia and America. On a carefully-reasoned page in the copy of M. Zola's essay "*Du Roman*" which lies before me, one of those idiots who write in public books has scribbled the remark. "They see nothing in life but filth and crime." This ignoble wielder of the pencil but repeats what more ambitious critics have been saying in solemn terms for the last fifteen years. Even as regards Zola himself, as the author of the delicate comedy of "*La Conquête de Plassans*," and the moving tragedy of "*Une Page d'Amour*," this charge is utterly false, and in respect of the other leaders it is simply preposterous. None the less, there are sides upon which the naturalistic novelists are open to serious criticism in practice. It is with no intention of underrating their eminent qualities that I suggest certain points at which, as it appears to me, their armor is conspicuously weak. There are limits to realism, and they seem to have been readily discovered by the realists themselves. These weak points are to be seen in the jointed harness of the strongest book that the school has yet produced in any country, "*Crime et Châtiment*."

When the ideas of Zola were first warmly taken up, about ten years ago, by the most earnest and sympathetic writers who then were young, the theory of the experimental novel seemed unassailable, and the range within which it could be worked to advantage practically boundless. But the fallacies of practice remained to be experienced, and looking back upon what has been written by the leaders themselves, the places where the theory has broken down are patent. It may not be uninteresting to take up the leading dogmas of the naturalistic school, and to

see what elements of failure, or, rather, what limitations to success, they contained. The outlook is very different in 1890 from what it was in 1880; and a vast number of exceedingly clever writers have labored to no avail, if we are not able at the latter date to gain a wider perspective than could be obtained at the earlier one. Ten years ago, most ardent and generous young authors, outside the frontiers of indifferent Albion, were fired with enthusiasm at the results to be achieved by naturalism in fiction. It was to be the Revealer and the Avenger. It was to display society as it is, and to wipe out all the hypocrisies of convention. It was to proceed from strength to strength. It was to place all imagination upon a scientific basis, and to open boundless vistas to sincere and courageous young novelists. We have seen with what ardent hope and confidence its principles were accepted by Mr. Howells. We have seen all the Latin races, in their coarser way, embrace and magnify the system. We have seen M. Zola, like a heavy father in high comedy, bless a budding generation of novel-writers, and prophesy that they will all proceed further than he along the road of truth and experiment. Yet the naturalistic school is really less advanced, less thorough, than it was ten years ago. Why is this?

It is doubtless because the strain and stress of production have brought to light those weak places in the formula which were not dreamed of. The first principle of the school was the exact reproduction of life. But life is wide and it is elusive. All that the finest observer can do is to make a portrait of one corner of it. By the confession of the master spirit himself, this portrait is not to be a photograph. It must be inspired by imagination, but sustained and confined by the experience of reality. It does not appear at first sight as though it should be difficult to attain this, but in point of fact it is found almost impossible to approach this species of perfection. The result of building up a long work on this principle is, I hardly know why, to produce the effect of a reflexion in a convex mirror. The more accurately experimental some parts of the picture are, the more will the want of balance and proportion in other parts be felt. I will take at random two examples. No better work in the naturalistic direction has been done than is to be found in

the beginning of M. Zola's "*La Joie de Vivre*," or in the early part of the middle of Mr. James's "Bostonians." The life in the melancholy Norman house upon the cliff, the life among the uncouth fanatic philanthropists in the American city, these are given with a reality, a brightness, a personal note which have an electrical effect upon the reader. But the remainder of each of these remarkable books, built up as they are with infinite toil by two of the most accomplished architects of fiction now living, leaves on the mind a sense of a strained reflection, of images blurred or malformed by a convexity of the mirror. As I have said, it is difficult to account for this, which is a feature of blight on almost every specimen of the experimental novel; but perhaps it can in a measure be accounted for by the inherent disproportion which exists between the small flat surface of a book and the vast arch of life which it undertakes to mirror, those studies being least liable to distortion which reflect the smallest section of life, and those in which ambitious masters endeavor to make us feel the mighty movements of populous cities and vast bodies of men being the most inevitably misshapen.

Another leading principle of the naturalists is the disinterested attitude of the narrator. He who tells the story must not act the part of Chorus, must not praise or blame, must have no favorites; in short, must not be a moralist but an anatomist. This excellent and theoretical law has been a snare in practice. The nations of continental Europe are not bound down by conventional laws to the same extent as we English are. The Anglo-Saxon race is now the only one that has not been touched by that pessimism of which the writings of Schopenhauer are the most prominent and popular exponent. This fact is too often overlooked when we scornfully ask why the foreign nations allow themselves so great a latitude in the discussion of moral subjects. It is partly, no doubt, because of our beautiful Protestant institutions; because we go to Sunday schools and take a lively interest in the souls of other people; because, in short, we are all so virtuous and godly, that our novels are so prim and decent. But it is also partly because our hereditary dullness in perceiving delicate ethical distinctions has given the Anglo-Saxon race a tendency to slur over the dissonances between man

and nature. This tendency does not exist among the Latin races, who run to the opposite extreme and exaggerate these discords. The consequence has been that they have, almost without exception, been betrayed by the disinterested attitude into a contemplation of crime and frailty (notoriously more interesting than innocence and virtue) which has given by-standers excuse for saying that these novelists are lovers of that which is evil. In the same way they have been tempted by the Rembrandtesque shadows of pain, dirt, and obloquy to overdash their canvases with the subfuse hues of sentiment. In a word, in trying to draw life evenly and draw it whole, they have introduced such a brutal want of tone as to render the portrait a caricature. The American realists, who were guarded by fashion from the Scylla of brutality, have not wholly escaped, on their side, and for the same reason, the Charybdis of insipidity.

It would take us too far, and would require a constant reference to individual books, to trace the weaknesses of the realistic school of our own day. Human sentiment has revenged itself upon them for their rigid regulations and scientific formulas, by betraying them into faults the possibility of which they had not anticipated. But above all other causes of their limited and temporary influence, the most powerful has been the material character which their rules forced upon them, and their excess of positivism and precision. In eliminating the grotesque and the rhetorical they drove out more than they wished to lose; they pushed away with their scientific pitchfork the fantastic and intellectual elements. How utterly fatal this was may be seen, not in the leaders, who have preserved something of the reflected color of the old romance, but in those earnest disciples who have pushed the theory to its extremity. In their somber, grimy, and dreary studies in pathology, clinical bulletins of a soul dying of atrophy, we may see what the limits are of realism, and how impossible it is that human readers should much longer go on enjoying this sort of literary aliment.

If I have dwelt upon these limitations, however, it has not been to cast a stone at the naturalistic school. It has been rather with the object of clearing away some critical misconceptions about the future development of it. Anglo-Saxon criti-

cism of the perambulating species might, perhaps, be persuaded to consider the realists with calmer judgment, if it looked upon them, not as a monstrous canker that was slowly spreading its mortal influence over the whole of literature, which it would presently overwhelm and destroy, but as a natural and timely growth, taking its due place in the succession of products, and bound, like other growths, to bud and blossom and decline. I venture to put forth the view that the novel of experiment has had its day; that it has been made the vehicle of some of the loftiest minds of our age; that it has produced a huge body of fiction, none of it perfect, perhaps, much of it bad, but much of it, also, exceedingly intelligent, vivid, sincere, and durable; and that it is now declining, to leave behind it a great memory, the prestige of persecution, and a library of books which every highly-educated man in the future will be obliged to be familiar with.

It would be difficult, I think, for any one but a realistic novelist to overrate the good that realism in fiction has done. It has cleared the air of a thousand follies, has pricked a whole fleet of oratorical bubbles. Whatever comes next, we cannot return, in serious novels, to the inanities and impossibilities of the old "well-made" plot, to the children changed at nurse, to the madonna heroine and the god-like hero, to the impossible virtues and melodramatic vices. In future, even those who sneer at realism and misrepresent it most willfully, will be obliged to put in their effects in ways more in accord with veritable experience. The public has eaten of the apple of knowledge, and will not be satisfied with mere marionettes. There will still be novel-writers who address the gallery, and who will keep up the gaudy old convention, and the clumsy "Family Herald" evolution, but they will no longer be distinguished people of genius. They will no longer sign themselves George Sand and Charles Dickens.

In the meantime, wherever I look I see the novel ripe for another reaction. The old leaders will not change. It is not to be expected that they will write otherwise than in the mode which has grown mature with them. But in France, among the younger men, every one is escaping from the realistic formula. The two young athletes for whom M. Zola predicted ten years ago an "experimental" career more profoundly scientific than

his own, are realists no longer. M. Guy de Maupassant has become a psychologist, and M. Huysmans a mystic. M. Bourget, who set all the ladies dancing after his ingenious, musky books, never has been a realist; nor has Pierre Loti, in whom, with a fascinating freshness, the old exiled romanticism comes back with a laugh and a song. All points to a reaction in France; and in Russia, too, if what we hear is true, the next step will be one toward the mystical and the introspective. Tolstoi's "Sonata," still unpublished as I write these lines, is understood to be wholly distinct from his earlier novels—to be psychological and imaginative. In America it would be rash for a foreigner to say what signs of change are evident. The time has hardly come when we look to America for the symptoms of literary initiative. But it is my conviction that the limits of realism have been reached; that no great writer who has not already adapted the experimental system will do so; and that we ought now to be on the outlook to welcome (and, of course, to persecute) a school of novelists with a totally new aim, part of whose formula must unquestionably be a concession to the human instinct for mystery and beauty.

EDMUND GOSSE.

GENIUS AND WOMAN'S INTUITION.

THE article in the FORUM * on "Woman's Intuition," by Mr. Grant Allen, attracted me strongly by its title, as I expected to find in it a fresh presentation of this much-discussed subject from the point of view of modern biology and psychology. Almost every writer of any discursiveness whatever has had his say about the idiosyncrasies of the female mind, and how it differs from the male mind; its instantaneous and sometimes surprisingly accurate judgments being usually dwelt upon as the chief distinction. The only possible source from which anything new can be brought to the discussion is modern developmental biology. The reader had a right to expect that Mr. Grant Allen would draw the materials for his discussion chiefly from that source, but in this he is disappointed. Mr. Allen does indeed attempt to do this, and talks somewhat learnedly about natural selection, etc., but he fails to make the proper application of scientific principles to woman's intuition. He says that it is "a variety of instinct," and that it may be regarded as "a survival, affecting chiefly a single sex, though extending its outlying modes to a portion of the other"; but in so far as this is true it is nothing new.

The thing really to be noted about woman's intuition from the modern biological standpoint, is that it is a highly-specialized development of a faculty of the mind which originally had as its sole purpose the protection of the mother and offspring. It is a part of the maternal instinct, and, like all instincts, its acuteness and subtlety are proportioned to the narrowness of its purpose. The wonderful shrewdness which we observe in some animals, such as the fox, is due to the super-development of the knowing faculty in a single definite direction for a single definite purpose. The wants of animals are narrowed down chiefly to two general objects—food and protection; and nature can afford to expend

* May, 1889.

a large amount of energy in sharpening the faculties that are expressly adapted to secure these ends. When we rise above mere instincts, we find that this super-development takes the form of cunning, which is often so great as to cause astonishment. It is simply the concentration of psychic power, through the operation of heredity and natural selection, upon a single object, so that the totality of that power shall work toward the one most practical of all ends. The faculty which we are here considering scarcely differs from the rest of this class

The power in woman of instantaneous and accurate judgment as to what to do when her safety or that of her children is in jeopardy, was developed during the early history of the human race, as it emerged from the animal into the properly human state; its only use was to protect the mother and the young from such dangers as beset them—dangers which increased with the growth of the intellectual faculty and the dispersion of the race over the globe. And with the origin and progress of civilization this power has increased in complexity, and has ever been the safeguard of the family against all attacks, strifes, and abuses, from whatever quarter. In the highest stages of enlightenment it still comes daily and hourly into use in guarding the virtue of woman, detecting the infidelity of man, protecting the youth of both sexes from temptations and pitfalls of every kind, evading the wrongs of unjust husbands and cruel fathers, checking dangerous financial extravagance or undue liberality in men, and in a thousand other ways. Upon such questions the judgments of women seem to be already formed in the mind, inherited as organized experiences of an indefinite past; and when an occasion arises they come forth instantaneously, without reflection and without deliberation. The dangers that have threatened woman and her helpless charges throughout all her history, have usually left her no time for these slower mental operations. She must act at once or all is lost; and natural selection has preserved those who could thus act, so that in modern society it is still true, and in a far wider sense than Addison supposed, that

"The woman that deliberates is lost."

Such is the sphere—not an especially narrow, but yet a definitely-circumscribed one—of woman's intuition, the female in-

stinct of self and race preservation. But it must be remembered that every instinct is developed in harmony with the particular environment of the creature, and that outside of that environment it is useless. The quality of being "unerring," never fully attained, is lost the moment the possessor of an instinct is removed to a different environment from that in contact with which the instinct was developed. It is so with this adjunct of the maternal instinct which we call woman's intuition. It has value and real existence only within the sphere of its normal activity as above defined. Outside of this sphere, the judgments of woman are no more "unerring" than those of man, and to be equally accurate and reliable, they require the same data and the same reasoning processes as do the conclusions at which men arrive upon the affairs of life.

The above constitutes an explanation of woman's intuition in the scientific sense of the word, and it seems strange that our author should have so completely failed to understand it. That he does so fail is evident from his almost reverential attitude toward the subject of his article. He seems to regard it as something mysterious and occult, even supernatural, unfathomable by human reason, and quite beyond the reach of all known laws of cause and effect—a sort of odic force, at which we must content ourselves to gaze and mutely marvel. Regarding woman's intuition as a sort of supernatural ken, he of course sees no reason why it may not be exercised in one direction as well as in another; very much as those who know nothing of the science of meteorology cannot see why the weather bureau should not forecast the weather for a year as well as for a day. As already remarked, an intuition, whether of man or woman, is nothing more or less than a judgment formed in the mind upon some question that is before it, and must be based upon legitimate data in some form actually brought into requisition. It must be admitted that the habit of forming instantaneous judgments is carried by many women into departments of life in which there is no store of registered experiences whereon such judgments can be correctly constructed, and, as a consequence, they are usually erroneous. It is mainly a sense of this greater liability on the part of women to err when called upon to decide any of the

broader questions of society and the state, that disinclines men, and often women as well, to admit them to these fields of activity; although this is much like forbidding a child to go into the water till it has learned to swim.

Aside from the momentum, so to speak, of this instinct, inclining women to think rapidly and to judge hastily on all subjects, there is really no difference between men and women with respect to their ability to arrive at just conclusions. Differences in this respect, where they exist, are due to other things than sex, and chiefly to two causes, namely, unequal mental power and unequal information. In the first of these, as every one knows, men differ immensely among themselves; and whether the average in men is higher than the average in women may be open to question. Certainly this power is greater in many women than it is in many men. As to the second cause, it is true that the lines are more clearly drawn between the sexes; but why should they be? This is a matter that society can control, and the question is a pointed one: Should one sex be denied the means of forming sound judgments and of entertaining rational views and correct opinions on what are admitted to be the most important questions of human life? If such denial is not deemed desirable, it can be prevented by education, though this education must be something more than can be got from books or institutions of learning. These must, indeed, be opened to woman as freely as to man, but so must also every other source of information be opened to her; and, after all, it is direct contact with the affairs of the world that fits both men and women properly to act their part in it.

Again, the fancied analogy between woman's intuition and the manifestations of genius is not merely visionary and absurd; it is an exact reversal of the true relations between these two things. As already shown, and as was necessary from the very way in which and the purpose for which it was developed, woman's intuition is essentially subjective and egoistic. It has self, or what is scarcely distinct from self, for its sole object. It is the safeguard of its possessor's personality, the loudest demand for individual existence, the strongest assertion of the will to live, and the farthest possible remove from the contemplation of

truth in any form for its own sake and the concentration of the mental faculties upon the ideal and the abstract. This character it maintains even in its highest phases, and it becomes in civilized woman the embodiment of all that is prosy and practical, and the antithesis of all that is poetical and æsthetic.

Genius is the precise opposite of all this. It is purely objective and impersonal; it ignores self and despises the common things of life; it denies and shuts out the will, and concentrates the whole being upon the purely ideal and the purely abstract. In every department of art—sculpture, painting, poetry, music—in literature, philosophy, science, everywhere that true genius finds room to assert itself, the coarser wants of the body are forgotten or subjugated, the love of life and the desire for its enjoyment, preservation, and perpetuation are suppressed, and everything that belongs to the world, or that can be classed as practical, is sacrificed to the pursuit of the ideal—of abstract truth in form, color, sound, diction, thought, or fact.

But all this has long ago and many times been said. It is well known to the writer whose article is under consideration here, and the only way to account for so palpable an error on his part is to suppose his complete misconception of the fundamental nature and psychological position of the very subject of that article—woman's intuition.

It is worth while to note here that the true reason why women have always seemed to possess so little genius, relatively to men, is the predominance in them of this very intuitive faculty. From its nature, as explained above, it is incompatible with the development of great genius; and as the latter gains, the former must lose. Moreover, although genius is something more than "an unlimited capacity for work," still that hyperbole is calculated forcibly to dispel the popular illusion that it is independent of work. It presupposes not only work, but the materials to work with. Genius is the power to bring truth out of facts, and all truth must rest upon a basis of fact. Man has displayed more genius than woman, largely because he has been in possession of a wider range of facts, a greater supply of the only material out of which genius can construct and create, viz., knowledge. And if woman is ever to display equal creative power, she too must

be supplied with the same kind of raw material, for which no qualities of mind can ever stand as a substitute. But, thus supplied, there is no reason to doubt that very high flights of genius may be made by women; and their greater familiarity with the social microcosm might, as Mr. Allen suggests, give to their genius a character of its own.

According to Mr. Allen, "great men do probably owe a large element of their greatness to the imaginative faculty, and to the intuitive faculty which they derive from their mothers"; and he thinks he has observed that "men of genius were the sons of mothers in whom the feminine attribute of intuition was highly developed." In the first place, the "imaginative faculty" and the "intuitive faculty," as I have just shown, are precisely opposite faculties, intuition being purely perceptive—the best English word for the Kantian term *Anschauung*. It is directly opposed to the imagination, or the creative faculty which belongs to genius.

But aside from this slip in his psychology, there is nothing to justify what he intended to say. The popular view, expressed over and over again by philosophers, and exemplified in numberless cases by biographers, is just the reverse of this, namely, that "great men" and "men of genius" have been the sons of exceptionally *intelligent* or highly-cultivated mothers. It would be easy to enumerate a hundred cases in which high qualities have been, rightly or wrongly, ascribed to such intellectual superiority in mothers, but I have no recollection of ever seeing them ascribed to great emotional power or special intuitive perceptions. Mr. Allen probably had in mind cases in which women of real genius have been the mothers of men of still greater genius—as he confounds genius and intuition, than which no two things could be more unlike. Women of real genius have very little intuitive power. They are usually rather indifferent to the affairs of the household—the true *locus* and *focus* of that faculty.

Whether the popular theory be true or not, that theory is that women of high mental endowments, whether these come under the head of genius or talent, or under the more usual but less clearly-defined head of general intelligence, exceptional culture, mental breadth, and womanly wisdom, transmit a preponderance of these qualities to their male offspring. I am not now defend-

ing this theory, though it seems to rest upon a considerable inductive basis, and it must be true that these qualities are transmitted as well as others. I simply wish to show that Mr. Allen has entirely misconceived and misstated it, and has proposed a theory of his own, unsupported by facts, which violates the laws of heredity and of cause and effect, in making a class of mental qualities the parent of a totally unlike and diametrically opposite class.

If there is anything in this popular theory, it goes to prove that the true way to advance the human race is to educate mothers in the widest sense of the term. They already have all the intuition they want; nature has provided this in excess of their present needs. If, as Mr. Allen, fatally to his own argument, claims, it is really increasing with civilization, surely there is no need to stimulate it artificially, and no danger of its being "educated out" of the sex. No one who has any faith in evolution can fear that such attributes as those which belong to the fundamental distinction of sex and the perpetuation of the race, can be seriously affected by any social theory or any human institution. The race is going to continue as heretofore, and if a little reduction in quantity, with corresponding improvement in quality, of our sufficiently abundant and none too perfect humanity should result from a more enlightened womanhood, the race would only be the gainer thereby. But, really, the elevation of woman to something like an intellectual equality with man, must have a tendency to increase rather than to diminish the productiveness of the race. The tendency toward sterility in the intellectually higher classes which Mr. Allen so deeply deplores, is due entirely to the fact, which he so approvingly points out, that "the sexes have diverged," and that "man has specialized himself on logical intelligence," while "woman has specialized herself upon the emotions and intuitions"; for this amounts to an admission that while man has advanced, woman has been left behind, a prey to an instinct largely out of harmony with her higher and more complex environment. Man has reached a plane of intelligence on which he cares more for intellectual companionship than for the satisfaction of the instinct to reproduce, and unless he can find such companionship in woman, he will

often decline to recruit the race at the expense of his own well-being. There is therefore the added inducement that society should seek to make woman a companion for man, not through the fear that the race will not be recruited, but that it may be recruited from its highest elements, and not, as is now chiefly the case, from its lowest.

In view of all that has been said, a single reflection seems to be justified. It is pretty certain that woman's intuition, which has become, in the manner described, her habitual mode of thought, cannot be trusted in dealing with the broader concerns of human life and action. Woman must either be kept within the narrow inclosure in which that habit of thought was developed, as Mr. Allen would apparently insist upon keeping her, that is, in a condition akin to the perpetual childhood (*enfance continue*) proposed by Comte; or else, if she is let out into broader fields, she must be furnished with something besides registered experiences of an indefinite past ancestry as a basis for this mental reflex action which we call intuition. It is not at all a question of sex in mind. Unless we suppose that women possess a supernatural insight into things of which they have never heard, we must admit that they are necessarily incapable of reasoning correctly upon questions about which they have no information. And as, in spite of Mr. Grant Allen and the chivalrous band who stand with him around this little pen to keep them in, a considerable number of the precious creatures have already got out, and others are daily escaping, it would seem to be the better part of valor to make a virtue of necessity, and, accepting the inevitable, to endeavor to tame them into harmlessness, and if possible to win them back to the fold, by offering them a few grains of sense and crumbs of knowledge. There are no present indications that these would be refused.

LESTER F. WARD.

AMERICAN INTERESTS IN AFRICA.

THE scramble in Africa for "protectorates" and possessions, and for the extension of "spheres of influence" and "action," by the commercial powers of Europe, is the event of the century. It has for its chief cause the necessity of seeking new outlets for trade, new openings for increasing population, new markets for overproduction; for the appliances of steam have increased productive power a thousandfold in the half century, and among the increasing millions the progress of science and of civilization has greatly checked the ravages of plague and pestilence, and even of war. This ambition for extended dominion means, in our practical age, extended relations, more ships, more commercial activity and wealth, and added power.

In Africa, centuries ago, were great centers of civilization, of commerce, and of wealth. Modern Spain proudly shares the remains of Moorish art and magnificence. There was Carthage, whose ships were on every sea. There was Egypt, the home of the highest civilization while the Germanic and Latin races were yet barbarians. There, on the east coast, a thousand years ago, Arab commerce with the Indies built up great cities, now lost in the sands, and earlier still the opulent empire of Ethiopia flourished; but to-day the Queen of Sheba's direct descendant, Menelik, sues for an Italian "protectorate"!

Is Africa to help solve the tremendous problem, to come to the rescue of overcrowded, overtaxed Europe—to be a *dérivatif* for its internal troubles, a means of reducing the strain in political and social crises and threatening changes? Can it replace, as an outlet for impoverished, dissatisfied, migratory hordes, the United States, whose legislation clearly tends to check the movement hither? Certain it is that European forces, whatever the motive is, and whatever the issue shall be, are developing there an evolution which is to have important results in Africa, in Europe, and in America.

This movement, in which Europe is so intensely interested, and in which we of America are bound to take no insignificant part, has for pioneer Leopold II., king of Belgium. An elevated and liberal spirit of philanthropy, an enlightened desire to do some good work for humanity *in memoriam* of his only son and heir, prompted him, in 1876, to an effort to promote the extension of civilization in Africa. At his invitation a number of Americans and Europeans most noted for their knowledge of Africa met, September 13 and 14, in his palace at Brussels, and mapped out a general plan for an organization and for a conference of the principal geographical societies.

This conference was held June 20 and 21, 1877, at the royal palace of Brussels, where the American Geographical Society was represented by one of its members, and where the organization of the African International Association was completed, with branches in every European state and in America, presided over by princes or by eminent citizens. The method proposed was the establishment of "civilizing and hospitable posts" across Central Africa, starting from the east coast at Zanzibar; and it was proposed that each country should have at least one station in this chain of posts. A large fund was subscribed among the friends of the King, in addition to his own bounty. An executive committee of three, representing the Latin, the Germanic, and the English-speaking races, in the persons of Quatrefages of Paris, Nachtigal of Berlin, and Sanford of Florida, respectively, and presided over by King Leopold, was appointed, and, on the adjournment of the conference, proceeded to work. Caravans, with Belgian officers chiefly, were organized at once at Zanzibar, and dispatched successively to the interior from Bagamoyo. The station Karema, on Lake Tanganyika, was the terminal station of the Association, when it was determined to continue the work from the west coast, and by the Congo; for on Mr. Stanley's return from that river, August 9, 1877, the American member of the executive committee, and the secretary-general of the Association, met him on his landing at Marseilles, early in 1888, with a proposition to take the direction and continuance of the work of the Association in the Congo basin.

The result was that in the following year, Mr. Stanley, under

an engagement to the King, commenced preparations, and in 1879, August 14, with an expedition of four small steamboats in sections, and a force of men recruited at Zanzibar, landed at Banana and commenced his slow progress up the valley, establishing stations from Vivi upward to Stanley Pool, which he reached December 3, 1881. His toils and hard experiences, are they not all written in a book? And of Savorgnan De Brazza, the Franco-Italian explorer, sent out in the interest of the Association, with 30,000 francs furnished by King Leopold to the French branch through its president, M. de Lesseps, "to establish its posts and plant its flag," is it not also written, how, more lightly equipped, he first reached the great pool of the Congo, by the Ogowê, and made his Makoko treaty, not for the Association but in favor of France; and how he planted the French flag there, and thus laid the basis for a subsequent successful claim to the Association's Niada Quiolon territory, a region whose area almost equals that of France?

The funds of the sub-organization of the Association for this Congo work, called the *Comité d'Études*, becoming exhausted, the King, who had commenced by appropriating 500,000 francs a year from his private resources, assumed the whole work; and in 1884 he had established in the Congo basin, including the Niada Quiolon country, forty-three well-organized posts, with some 170 American and European agents, and had made between four hundred and five hundred treaties with the chiefs of the river tribes, who ceded to the Association their rights of sovereignty and territories in return for protection and other considerations. The civilizing influence of the Association, now practically the King of the Belgians, was potential throughout a wide area. The growing power and extending domain of the International Congo Association excited attention everywhere, and the jealousy and hostility of its neighbors, Portugal and France. France was placated early in 1884 by a reversionary right of purchase given to her by King Leopold, in the event of the disposal or sale of this territory. Portugal negotiated actively with Great Britain for a recognition of her historic claims over the Congo region. Great Britain for over a century had sternly denied these, and had directed her fleets to prevent any

exercise of sovereignty on the part of Portugal; but, true to her instincts of trade, she now agreed, mainly in consideration of the cession to her of some coveted and disputed territories on the south-east coast, to make this long-denied admission of sovereign rights of Portugal to the Congo. This treaty, signed February 26, 1884, came to naught, for it was found advisable, after the action of the United States in recognizing the flag of the International Association of the Congo as that of a friendly power, by the declaration of Washington, April 22, 1884, to rescind the agreement. Thus the Congo, thanks to American intervention, was opened to the free trade of the world.

As to the origin of this intervention, the first remark of Gen. Gordon to the American member of the executive committee, when the former was invited to act as the coadjutor of Stanley on the Congo, was: "But I must have a flag. I must kill men. There are slave traders to destroy!" It brought home vividly the fact that the Association was unknown to the nations, that it had no recognized flag or authority, and that Gordon or Stanley, returning home from Africa *via* Lisbon, for example, would be liable to be treated as a pirate if he had "put away" a Portuguese slave trader raiding the territories of the Association. No help was to be expected from any European power.

In these trying and critical circumstances, the American member of the executive committee volunteered to go to the United States to secure the recognition denied in Europe. He was empowered to offer in exchange therefor free entry for our goods, full rights of property and trade to our people, and the engagement to endeavor to abolish the slave trade—this throughout a region of over 1,000,000 square miles, peopled by 50,000,000 practically naked people, and with a water way not exceeded in extent by our own Mississippi.

President Arthur took kindly to the proposition. He recognized at once the important civilizing influences of the Association, and he was also influenced by the idea of covering those unclad millions with our domestic cottons. He saw the point suggested to him, that but three yards per capita would make an enormous aggregate for our cotton mills; and in his message to Congress of December 3, 1883, he strongly recom-

mended the recognition of the flag of the Association. The Senate took up the matter, and the discussion of the subject occupied several of the executive sessions of that body.

The Chamber of Commerce of New York, on motion of Mr. A. A. Low, supported by an able argument by Chief-Justice Daly, president of the American Geographical Society, unanimously passed resolutions indorsing the recommendation of the President and urging Congress to take immediate action upon it. Other chambers of commerce followed with the same recommendation; and on March 26 the Senate Committee on Foreign Relations, in a very elaborate and learned report through Senator Morgan, recommended the recognition of the flag of the African International Association as that of a friendly power. On April 22, formal recognition of the Association was made by the United States government.

The ship of war "Lancaster" was then sent down to the Congo to salute the flag, and the political birth of the Association was accomplished. This act excited little interest at home, but caused wide comment and criticism in Europe. Its first result, as before said, was the breaking down of the Anglo-Portuguese treaty for the control of the Congo; its next was a moving of the European powers in the same direction. Germany first inquired if the same privileges would be accorded to her in return for the same recognition, and on this basis concluded the treaty of November 8, 1884. But Prince Bismarck saw the desirability of fortifying the concessions of the African International Association by a European sanction. From France he first secured the assurance that, in the event of availing herself of her reversionary privilege, no prejudice should inure thereby to vested rights. Then it was that Germany, in concert with France, issued invitations to the United States and to the European powers to attend a conference at Berlin, with a view to discussion and agreement upon the following propositions: 1. Freedom of commerce in the basin and at the mouths of the Congo. 2. Application to the Congo and the Niger of the principles adopted by the Congress of Vienna, with a view to sanctioning free navigation on several international rivers; which principles were afterward applied to the Danube. 3. Definition of the for-

malities to be observed, in order that new occupations on the coast of Africa may be considered effective.

The United States government could not be omitted from such a convocation. One of its citizens had first explored and made known the Congo region and displayed our flag there; and while it had not availed itself of this "right of discovery" upon which so much of Africa is claimed, it had first recognized the International Association, had aided its birth, had secured its political existence, and had acquired rights for American citizens in its territories.

Meeting November 15, 1884, the conference terminated its labors February 26, 1885, by the signing of the *acte général*, less than one year after the signing of the declaration of Washington. The additional advantages to the United States from this *acte général* were: the sanction and recognition by Europe of the rights and privileges accorded in the declaration of Washington by the International Association of the Congo, whose power, singly, to protect us in their enjoyment, with the hostile claims of France and Portugal on either side, might be subject to question; the very considerable extension of the area for these privileges; the right to carry our flag on all the waters within its borders—not only on the Congo, a navigable water way about equal in extent to that of the Mississippi and its tributaries, but on the Niger as well—with practical exemption from custom duties; the neutralization of its territory, and security from hostile acts of any civilized power; and, lastly—a matter which our cavilers against entangling alliances seem to have overlooked—the securing for our flag, at all times, of access to the finest harbor on the west coast of Africa, where is a broad expanse of water, affording in its lower portion a safe anchorage for the fleets of the world, and accessible for 110 miles to Matadi (the terminus of the railway now building around the Cataracts) for vessels drawing 26 feet of water. England surrounds Africa with her naval and coaling stations, and would gladly have placed restrictions here also. It is needless to comment upon the probable importance of this point to us and our flag in the future.

Before the conference had completed its work, every state represented therein (except Turkey, which concluded hers later

on) had made treaties based on the declaration of Washington, and its last act was to receive the representative of the Association. Belgium then permitted King Leopold, as chief of the state founded by the International Association of the Congo, by acts of Parliament of April 28 and 30, 1885, to carry on its government personally.*

And it may be well to note here that at this conference the representatives of the United States and Great Britain endeavored strenuously to secure measures for controlling the importation and use of spirits. Their efforts failed by reason of the insistance of Germany and Holland that this important product of their industries (two thirds of the exports of the former to the west coast being spirits) should come under the general rule of free entry. The article in the general act containing the *vœu* (earnest desire) on the subject, together with the right to control the internal traffic in spirits, was all that could be secured; and it is under this *vœu* that the conference at Brussels is seeking to secure restrictive measures on the subject.

It was at Berlin that the difficult question of territorial boundary was definitively settled—outside the conference, of course. An African Belgium of near one and a half million square miles, or one eighth of all Africa, was secured for free trade and equal rights to all; and an independent African state, thirty-three times the size of Belgium, was established, with its water ways free for all time to the flags of all nations.

Under the name of the Independent State of Congo, its government was organized after the most approved methods of Belgian administration. Its departments of administration are located at Brussels, under the direction of the King Sovereign. It has a numerous *personnel* in Africa, where its capital is Boma; numerous steamers and posts on the upper and lower river; an army of about 2,000 men, mostly native troops, under Belgian officers; and a budget nominally of about one million francs, but really about two, and, this year, three millions, nearly all from the private resources of the King. Within its area is an estimated native population of 40,000,000, with about 450 whites, one half

* "*L'union entre la Belgique et le nouvel état sera exclusivement personnelle.*"

of whom are government officials and employees. The population of the entire Congo basin, or free zone, is estimated at about 50,000,000.

With the closing of the conference, one of the important acts of which was to determine the formalities to be observed with regard to protectorates and other new possessions, commenced the "scramble in Africa." The area of Africa is about three times that of Europe, or 12,000,000 square miles, and some writers estimate it to contain about an equal population—325,000,000 souls. It is a great basin composed of plateaus, gradually ascending to 7,000 feet at some of the central lakes. It has four great river systems: on the west the Congo, second only to the Amazon in the volume of its waters, and the Niger; on the north the Nile; on the east the Zambesi. These rivers once formed vast internal seas, which finally, breaking through the mountain barriers, have descended by cataracts and *cañons* to the ocean, leaving great areas of rich deposits of wonderful fertility. The scramble commenced by fixing metes and bounds to the annexations and protectorates along the coast, which extended indefinitely into the interior under the names of "sphere of influence" and "sphere of action." Notably within the last five years the east coast has witnessed the eagerness of the Germans, the English, and the Italians to enlarge their African possessions, and of the Portuguese to assert their historic claims. The French having practically secured the Niada Quiolon region, Tunis, and Madagascar, have not sought to acquire new spheres of influence in Africa, unless the movement against the King of Dahomey may be found to require a new annexation. The English were once potential at Zanzibar, whose sultan, Said Bargash, asserted dominion over vast regions north and south, and indefinitely into the interior, and practically governed through the British Resident, Sir John Kirk, whose unbounded influence was exercised wisely and well for his own government and for humanity. One day Sir John Kirk was recalled—why, was a mystery—and the Sultan was left to the tender mercies of the Germans. It was said that Mr. Gladstone's government, finding it had quite enough to do to cope with France in Egypt, had made an agreement with Germany for "hands off" on the east coast, against "hands off"

in Egypt; at any rate, German difficulties with the Sultan, and German claims backed up by a fleet, and no support from Great Britain to protect him, resulted in important concessions to the German East African Company, which was and is still supported and sustained by its government with the greatest energy and liberality. The coast line south of Zanzibar some 300 miles, to Cape Delgado, was acquired in consideration of certain stipulations for the payment of moneys equivalent to custom-house dues; and here the Germans were soon involved in difficulties with the natives in the work of extending their sphere of action in Africa—a chronic peculiarity, this, it may be remarked, of the Germans in their dealings with the natives. The British public was greatly exercised over this transaction, and British merchants, headed by that great and liberal philanthropist, the Scotch capitalist, Sir William Mackinnon, lost no time in securing through him, from his friend the Sultan, concessions of a similar character for the remaining coast line and ports north, about 150 miles (subsequently extended to 250), which he made over to the British Imperial East African Company, organized under a royal charter dated September 3, 1888, with a sphere of British influence to extend indefinitely inland beyond the Victoria N'yanza. It may be stated here that limitations of spheres of influence had been agreed upon between Great Britain and Germany, October 26, 1886. Both powers, it should be observed, have also agreed in recognizing and assuring the Sultan in his *insular* possessions.

The Emin relief expedition was also organized by the same enlightened philanthropist, to confirm Emin in the highly important region of equatorial Soudan, commanding the gateways of Central Africa to the north; or to bring him away safely with his rich stores of ivory and ostrich feathers; or, perhaps, to extend still further the sphere of British influence to that province which Egypt, in the instructions which Stanley bore, offered to abandon. The result of the heroic efforts of Stanley and of that expedition has been unfortunate in this sense, that, failing to bring adequate relief in cartridges to Emin, this important position had to be abandoned, and the way was left open to the Arab fanatics and slave traders, who are now busy in exchanging,

through Khartoum and Massanah, Emin's rich stores of ivory for guns and munitions to carry on their barbarous traffic and to extend *their* sphere of action in Central Africa. It will take years of time and millions of money, and probably much bloodshed, to recover from this loss to civilization. Had Emin been enabled to hold his position, the suppression of slave trading and slave raiding would have been much easier.

It is estimated on high authority, that of Quatrefages, that 30,000,000 slaves were exported for the Americas from Western Africa, of which one million went to Brazil. Of the descendants of those who survived the horrors of the middle passage, we have by far the greatest number, probably eight million. We owe to our forefathers in England the imposition of this curse of slavery on our land. At the Peace of Utrecht, London and Liverpool merchants had the monopoly of the slave trade. In the Treaty of 1814, confirmed by the Treaty of Vienna, England recognized Portugal's right to continue the slave trade, but restricted it to north of the Equator; and it is a curious fact that the only white people engaged in slave traffic to-day are Portuguese of more or less pure blood, who still do a thriving business in slaves in the regions of the Upper Kassai, Luala, and Quango rivers. No slaves are exported as such, but it is more than suspected that many "colonists" and laborers booked as going under contract, are not by any means voluntary emigrants. Of the Zanzibaris employed as porters or soldiers on the Congo, many, if not most, were slaves. Even in the last expedition of Stanley, the Emin relief, it is credibly stated that most of the 623 Zanzibaris employed were slaves, and the value of those not returned to their owners at Zanzibar had to be paid. Much of the labor employed on the Congo has been of slaves, who, however, are emancipated by law, generally after seven years of labor. Slave labor is employed largely on the west coast, where the slave export of the olden time has ceased altogether.

Slavery, as it exists in the interior of Africa, is an institution dating back to biblical times, and carries in domestic life little privation or cruelty to the slaves in comparison with the horrors of the trade. They constitute a part of the family, and are evidence of the riches and importance of the master, whose

wives increase in number in proportion to his wealth, and augment it by their labor. It is useless to calculate upon eradicating slavery from the social life of Africa for many generations yet. Said Stanley when before the committee on the subject at the conference of Berlin, in reply to a question about doing away with slavery and the slave trade: "In this great and imperial city of Berlin it is quite possible for its government and police to prevent smoking in the streets, but I defy them all to prevent a German burgher smoking in his own house. The first is the slave trade; the last is slavery." Slave trading as practiced—mostly by Arabs raiding peaceful villages to supply the markets of North Africa, Arabia, etc., by which at least twenty lives are sacrificed to secure one slave, while of those secured a very large proportion perish on their way across the continent—is a barbarity that soon must cease. The civilized world is working in concert to that end, and if the outcome of the Anti-slavery Conference should disappoint the expectations of philanthropists, it must be remembered how difficult it is to secure among so many possessors of territory there the unanimity of action necessary even for the measures preliminary to the desired end. It is through the more potential influences of the spreading of a network of steam communication across the continent, that it will be effectually suppressed.

Much is expected from missionary effort in Africa. Thus far one is constrained to admit that the Negro there does not take readily to Christianity. The remains of churches and cathedrals on both coasts, now buried in the sands, are evidences of the efforts of Portuguese Jesuits in the sixteenth and seventeenth centuries; and the only vestige of their influence that remains is these ruins. In our own times the Catholic missions, of France especially, and notably those in Algeria, have made great efforts, and sacrifices of life and health, and the Protestant missions of Great Britain and America are actively engaged along the west coast and up the Congo; yet the number of Christian converts among them all will be found very small, and mostly among the slaves they buy to christianize. On the other hand, the Arabs are extending the Moslem religion wherever they go. For every convert the Christian missions in Africa combined can make, the Mohammedans probably make twenty.

But to return to the British East African Company. Within forty days of its incorporation, September 3, 1888, its administrator and officials were at Mombasa—destined to be the most important, as it is the best, port on the east coast. Within two months a caravan was started for the interior to found stations and establish relations with the various tribes and chiefs. This was to be followed by others, and a chain of posts was to be formed to the lakes, preparing the way for a railroad. The company is rapidly developing into a regular government. Its motto is "Light and liberty." It has a flag, an organized administration, tribunals, and an armed force. Already eleven tons of copper coins, with the stamp of the company, are circulating, and trade is growing rapidly. Lighthouses and piers, telegraph lines radiating to the other ports, connection by cable with the outer world, and a regular subsidized line of mail steamships, are developing Mombasa into a great port—the future station for the British naval forces on the East African coast. Forty miles of railroad, with its rolling stock complete, are now being constructed, and before long the line will reach the Victoria N'yanza. Its capital, within a year of its incorporation, was raised to £2,000,000, eagerly subscribed. Its sphere of influence is estimated by it, and admitted by its rivals, to be 100,000 square miles of territory; how much more, events will soon determine. Its territory, like the German company's, will be bounded on the west by the Congo State. It is highly probable that it will secure, if it can, the equatorial provinces of Soudan which Emin has just vacated, the richest of Central Africa, but which the Germans are likely to covet, if not to reach out for under the able lead of that clever and experienced officer, Major Wissmann, and with the help of Emin, now on his way thither. Uganda, where M'tesa's successor rules over 5,000,000 subjects, almost naked when Stanley saw them a few years since, and now clothed in European textiles unknown twenty years ago, will also, doubtless, be absorbed by British influence and action. This company is certain to do good work for British interests and for civilization. It is a type, and a grand one, of modern British methods. Says the prospectus of the company offering to the public the opportunity to subscribe for its new shares:

"It is seldom that an enterprise of such magnitude, and possessing such opportunities for administrative, commercial, and philanthropic success, comes within the range of a company having the liability of its shareholders limited by royal charter. Great opportunities will arise for utilizing capital in the development of the vast territories which come under the management of the company and are comprised within the sphere of British influence.

"The development of India by the Honorable East India Company was an undertaking involving a continuous struggle for many years; but in those days communication with that country was a matter of months, whereas communication between England and Mombasa is now a matter of a few days only. With the existing and ever-increasing facilities of rapid communication by steam and telegraph, the development of East Africa should not be a work of any great length of time; and with careful administration and the advantages which that country is believed to possess for a large and lucrative trade, the operations of the company should prove not only a financial success, but also a national benefit."

Extended plantations and improvements have been started with wonderful energy and method; the natives and the Arabs have been conciliated and inspired with confidence, and peaceful operations assured; while the Germans, with similar concessions and powers, have unfortunately involved themselves in trouble and wars, with the result of disturbing internal communications and of driving off the trade by caravans from the interior, which, thus diverted to the Congo, will perhaps permanently direct the current of the ivory trade down its waters to the Atlantic.

The Arabs, recognizing the sentiments of justice of the newcomers in respecting rights of property under their laws, have made friends with them, and become allies instead of enemies. Again, the Arabs have been taken into partnership in the English caravans, money and goods have been advanced to them, the posts of the company have been made depots for their produce and goods, and they have thus been encouraged to conduct legitimate trade, all slave trade being prohibited and severely punished. Is not this a practical solution of the slave-trade question? Show that born trader, the Arab, a legitimate field for lucrative commerce, and he will abandon the slave trade, especially where the appliances of steam for transport render human portage unnecessary.

Mr. Mackenzie, the representative of the company in Africa,

at the general meeting of the company, June 6 last, is reported to have said that

"he had heard a great deal of abuse of the Arab, who was denounced as bloodthirsty and reveling in the shedding of innocent blood. He would not contradict the statements of the many excellent men who might have ground to support them. He could only say that such statements were contrary to his experience of the Arab; and he spoke in all honesty and sincerity of the men among whom he had lived in relations of close intimacy for over fifteen years in the Persian Gulf, and now lately in Africa. The Sultan of Zanzibar, Sayid bin Hamid, and M'Baruk, and their sons and brothers, were all men whom he was proud to place in the category of his most trustworthy friends. That being so, they could not wonder if he desired to denounce the ignorant, he would even say the cruel and wicked, doctrine which was being preached to get up a crusade against the Arabs in Central Africa. That doctrine, he assured them, was as dangerous as it was impracticable. That was not the way to gain the sympathy, confidence, and coöperation of the Arab, who was a keen and astute trader. They must work with and through him in trading operations, and let him benefit by their presence. On the 1st of January this year he himself was enabled to obtain the liberation of 1,400 slaves, who now held their papers of freedom, and with whom the Arabs had no desire or intention to interfere. Some of these people had returned to their old masters' houses and were being treated with the greatest kindness."

The Imperial British African Company is rapidly developing into a regular government; its administration, tribunals, and armed force are steadily taking form. Silver currency will soon follow the copper coins already introduced. The Arabs will be powerful allies to carry on internal trade, and the Anglo-Indians to develop it and open commercial outlets abroad. A railroad will soon connect the Victoria N'yanza with the coast, and then will follow various railroad and steamer lines radiating from the high lake region of Central Africa. The papers announce the appointment as governor of Gen. Sir Francis De Winton, a capable and prudent man, whose experience as administrator-general for two years in the Congo State and in recent missions in West and South Africa will be turned here to good account.

In this connection may properly be mentioned other organizations of similar character. The Royal Niger Company, formed in 1886, with royal charter to take over the British houses on the Niger, and likely to extend still further to cover the Bonny and Calibar Rivers, or an area of about 75,000 square

miles, has made 300 treaties with the tribes back from the coast, and governs for the parent country in the same way as the British East African. The African Lakes Company, the outcome of the missionary societies established on Lakes Nyassa and Tanganyika, has an important station at Blantyre, on the Zambesi. It has done good work for civilization by introducing commerce, order, and means of transport, and with its roads, connecting water ways, and steamers on the Zambesi and Lake Nyassa, has established regular and safe communication and transport to Lake Tanganyika, securing British interests and trade over a very considerable region. South of the Zambesi, the British South African Company is extending the sphere of British influence over a vast and rich territory, embracing the area between the upper and middle Zambesi at the north, and Bechuanaland (British Colony) and the Transvaal on the south, and on the west reaching to 20 degrees east longitude to meet the easterly limits of German territory in Damaraland. So much for the extension of British spheres of influence within the last five years.

Italy, too, after vainly seeking to share with France a portion of the Mediterranean coast, all of which seems likely to follow Algiers and Tunis under French domination, has now established her influence and action on the Red Sea; and with the aid of Great Britain has extended her protectorate from Ras Hufin on the north, to the line of the Juba River on the south; thus including in its protectorate the kingdom of Abyssinia, and the Somalis and Gallas, and touching on the south the northern limit of the sphere of British influence as defined by the British East African Company. France, in addition to her extensive possessions of the upper Niger and Senegal on the west coast, was first in the scramble for African extensions. She has annexed to her colony of Gaboon the Quiolon region, which was first controlled by the International Congo Association under treaties made with the native chiefs, but which had to be abandoned under the pressure of France and the necessity of obtaining its aid for securing at least one bank of the Congo.

To return to the Congo. The example of the United States in recognizing the flag of the International Association, now the Independent State of Congo, was followed by all the powers in

Europe, as before said; and under this name, with the assent of the Belgian government, it entered into the family of nations, and its illustrious founder is carrying on effectively a model government in the interests of civilization and of freedom. Thus far, the receipts from export duties, licenses, sales of land, etc., are small as compared with the expenses, and amounted last year to $600,000, the deficit being supplied from the privy purse of King Leopold; but capital is being rapidly attracted thither. Several Belgian companies have been organized, and are developing its resources, the principal one being a railroad company with a capital five million dollars, now engaged in building a road around the Cataracts, from Matadi to Stanley Pool, a distance of about 260 miles.

As the American flag borne by Stanley was the first one displayed to the natives in his voyage of exploration down that river, so the American flag was the first displayed on the waters of the upper Congo, leading the vanguard of commerce. The Sanford Exploring Expedition, organized June 28, 1886, launched the "Florida," the first commercial steamer on the waters of the Congo, after a year of laborious effort in transporting it, mostly in sixty-pound parcels, on the heads of some two thousand porters. This was followed by the little steamer "New York." On July 9, 1887, was formed the Belgian Company of Commerce and Industry, which is the parent, so to say, of the five or six Belgian Congo companies successfully working there. To show the growing popularity of Congo enterprises (held in such disfavor when the Sanford Exploring Expedition was formed, that only one third of its little capital of three hundred thousand francs could be obtained from Belgians), it may be stated that at a recent increase of capital of the Haut Congo Company to three million francs, the public subscription was covered ninefold.

The great profits of these enterprises have stimulated other companies, Dutch, French, and English, and, including the State and missionary steamers and those now building, by the end of the year the number of steamers on the upper Congo will have reached thirty, all carried around the Cataracts by porters in sections, and put together at the Pool. Three hotels, a club house,

a market, a tramway, and numerous and constantly-increasing trading stations are established on the lower Congo. On the upper Congo are numerous missions of various denominations. Stations of the State are scattered along the river and its tributaries up to and beyond Stanley Falls, where Tippoo Tib, with a numerous and increasing force of Arabs, rules as *vali* for the chief of the Congo State, King Leopold.

This movement of the Arabs from east to west, carrying with them their religion and their trade and the demand for our domestic cottons, is one of the marked features of the African movement. When Stanley left Nangwai, on his first expedition down the unknown Congo, in 1876, there were two or three Arab posts there. It is now a large center of Arab trade. Kassongo, which is near it, has, according to Captain Trivier, who visited it just a year ago, 20,000 people. At Stanley Falls there are probably as many more, with several thousand armed men who know only Tippoo Tib as their chief. There are now in those large settlements four or five of their places of worship. The ivory caravans, formerly going to the east coast, have now turned westward, and Stanley Falls, Nangwai, and Kassongo are great centers of trade. The Arab has brought order and cleanliness and a taste for European fabrics among the naked barbarians there. He is the pioneer of civilization in Africa. The Negro, under his stern and often cruel rule, is made more useful. Every village has its Arab post that controls the trade, exacts tithes, and administers justice in its way. The culture of rice and sorghum and onions, and the use of our cotton goods, called *Merikani*, are steadily spreading. The Arabs form an element that cannot be ignored, and a most formidable one if dealt with as enemies. Were the crusade proposed against them in the interest of the suppression of the slave traffic to be attempted, this cruel remedy would be found to be worse than the disease. All Central Africa would be ablaze with war. To-day, on the far upper Congo, they are most powerful auxiliaries to trade. Their numerous caravans from the interior are centering there, and the commercial companies are reaping rich harvests in exchanging European fabrics for their ivory, which, finding its outlet at Boma and Banana, swells largely that export

of the Congo State. The State has established an intrenched camp at the junction of the Aruwimi with the Congo, to head off, with a thousand troops and Maxim guns, any possible Arab hostile movement. A similar camp will be established on the upper waters of the Sankouru.

Meanwhile, the civilizing work of the King, conducted with a liberal and unsparing hand, is making great progress below. Take, for instance, Bangala, where Stanley had to fight his way through hordes of cannibals down the river. Those very people, a splendid race physically, are now among the best soldiers of the State. They are employed by missionaries and by merchants even as far down as the lower Congo, and prove to be excellent laborers. They make the materials of the brick buildings at Bangala, and show skill and adaptability in many handiworks. Their taste for European goods increases, and they labor more and more to supply these new wants. Cannibalism is a thing of the past, their cruel rites are rapidly disappearing, and the custom of human sacrifices is rapidly becoming obsolete. There are now twenty villages within the Bangala district occupied by posts of the State where order is established, tribute is paid, and new sources of revenue exist. These civilizing centers of the State are working enormous good with the order and security, the trade and production they bring.

The commerce of the State is rapidly increasing. The official bulletin, February, 1890, gives the exports as 8,572,519 francs. These comprise ivory, India rubber, palm oil, palm nuts, peanuts, sesame, coffee, wax, copal and other gums, orchilla, vegetable fibers, and hides. The Sanford exploring expedition brought from the upper Congo region the first India rubber, having collected 50 or 60 tons at one of its stations. Its successor will probably this year bring down 150 tons, purchased by it through its stations, which extend up to Stanley Falls.

One of the practical results of these new forces brought to bear upon different points of Africa in the interests of commerce is to be noted here—the extension of communication by steam across its territory east and west, north and south. Steamers now reach up the tributaries of the Congo, at two different points, to within one hundred and fifty miles of Lake Tangan-

yika. An expedition to start this month for Kasanga is likely to reach a point much nearer even, whence a narrow-gauge railway is likely to be projected to the great lake. The discoveries of Stanley on his recent expedition show that the Victoria N'yanza, with its expanse of twenty-seven thousand square miles, is but one hundred and fifty-five miles from Lake Tanganyika; steam and the iron horse will soon bridge that distance, and thus a route being opened to the Nile, communication will be established with Egypt on the north. On the south, the African Lakes Company has, as has already been shown, built roads to connect Lake Nyassa and Lake Tanganyika, and around the Shiré rapids, on whose waters are their steamboats; and here again is another outlet, by the Zambesi. We have already referred to the road extending from Mombasa to the Victoria N'yanza, to be completed in a few years, giving another communication to the Indian Ocean from the equatorial provinces of Soudan. From Cape Town and Port Elizabeth a railroad has been built to Kimberly, and is reaching forward to Shoshong, and it can safely be predicted that this line will be extended to Lake Nyassa, and so on to Tanganyika; and still another route north and south is to-day being discussed in France—a railroad from Algeria south across the desert to tap equatorial Soudan. The Portuguese are building a road from Saint Paul de Loando, on the west coast, to Malinge, expecting ultimately to tap the head waters of the Kassai, a great India rubber region, which is one of the important tributaries of the Congo.

The railroad around the cataracts of the Congo is being built after slow, careful, Belgian methods, to be finished in four years. Its 435 kilometers could be readily opened to traffic, on American lines and methods, in eighteen months, leaving to increasing trade to provide for more substantial and permanent works for which more time might be required. The rates given in its prospectus—as a maximum, to be sure—for passengers and freight, are so enormous that other lines will undoubtedly be tempted to reach up for the immense business soon to be developed there. A French company with two million francs capital has lately been organized for the preliminary surveys of a railway through its territory to Stanley Pool, and the road will

doubtless be built. Already an excursion to the Congo is advertised by a tourist agency; cost, all expenses included, 3,000 francs.

Within easy reach of our commerce is the Congo basin, equal in extent of navigable waters to any watershed on the globe, and second only in the volume of water discharged into the ocean (fifty thousand cubic meters a second); comprising one tenth the area of Africa, of which it embraces the central and richest part; greater in extent than India, and surpassing it in variety of products and in fertility of soil; open unreservedly to the free entry and free transit of our merchandise; with the finest port and harbor of West Africa, made neutral by European agreement. What a field for enterprise is here; what an opening for our manufacturers among its fifty million of unclad inhabitants "thirsting for trade"; what an opportunity for exerting civilizing and christianizing influence!

Has a wise providence prepared here another Canaan for our modern Israelites, to which they shall carry back the civilization and Christianity with which three generations of contact with the Anglo-Saxon race has impressed them, enlightening that pagan darkness, developing the wonderful riches of the country, and helping to make Africa again a potent factor in the world's affairs? "The Congo basin," says an eminent scientific authority, Prof. Dupont, fresh from a visit there, "is destined to be the granary of the world." Is this the ground to draw the gathering electricity from that black cloud spreading over the southern States, which thus far has dropped fatness upon them, but which is now growing big with destructive elements?

Perhaps here may be found a solution of the race problem that presses on us and must be met and solved. What eminent statesman will give himself to this great work, compel public attention, and point the way thither for these disturbing elements? An exodus of the better educated and more ambitious people of the colored race would lead up to practical, peaceful, happy results for us and for our African population, and to immortal honors for that statesman. When is the new colored Moses to arise for this exodus and lead his people home?

An exodus of the educated and independent among our African population is inevitable; but to direct it properly, organ-

ization and steamship and commercial companies are necessary. Our Negroes can find in Africa unexampled opportunities, and our capital, especially if used in the employment of our Negroes, unexcelled prospects of gain. Together these can supply to the native, with his incomplete faculties, his lack of reason and of initiative, what he most needs—a directing influence to civilize him, to teach him on the one hand the value of his tropical wealth, on the other to make that wealth available.

Our present markets are becoming overstocked, as is the case with all other civilized nations. The Congo offers us new opportunities; first, for the sale of the overflow of our markets; secondly, for earning new wealth in a country surpassingly rich in vegetable and mineral values, where labor costs two cents a day, and where the native's chief characteristic is his adaptability.

The country is not wholly barbarous, though the Negro does not appear himself to have discovered any of the germ ideas of culture. His dogs, cats, sheep, goats, pigs, fowls, and pigeons came from the east, as also his horned cattle, horses, and asses, and his skill in working copper and iron. Of his plant-food, the manioc, his staff of life, yielding ten to twenty times the return of wheat, beans, and Indian corn, was introduced by the Portugese on the west coast. From India came the banana, sugar cane, lemon, mango, hemp, tobacco, and the domestic fowl. Millet was brought from Arabia and Egypt, the orange from China and Cochin China, and the sesame from the Sundo islands. From America, besides some of the above, came the pineapple, peanut, alligator pear, guava, sweet potato, tomato, and pimento. The Arab has introduced everywhere onion and rice culture, and trade. The great product, palm-oil, is essentially African; but of eight principal aliments in use, five came from America.* Evidently, then, the Congo man is not an utter barbarian. He has learnt the first lessons of humanity. He is docile and eager for trade and civilization, as is proved by the prosperity of the Congo Free State, and of the commercial companies on the Congo. Are we to avail ourselves of the opportunity at our hand, or shall nations reputed less enterprising than we alone reap benefits from it?

HENRY S. SANFORD.

* "*Lettres sur le Congo*," Prof. Dupont, 1889.

FETICHISM IN POLITICS.

THE recent exposure of abuses flourishing under Tammany rule in New York, naturally calls renewed attention to the most serious problem in the development of American institutions—the application of universal suffrage to municipal government. This problem is becoming more serious year by year. The urban population increases disproportionately, through the tendency of modern civilization to stimulate the gregarious instinct by the facilities which it affords for supplying the needs of huge masses of men, by the higher degree of comfort or luxury which applied science puts within the reach of wealthy communities, and by the craving for excitement which is constantly becoming a more marked feature of average human nature. Professor A. B. Hart tells us that the growth of the urban population has been from 3.9 per cent. of the nation in 1800, to 22.5 per cent. in 1880. The process is continuing with accelerating force, and the cities probably now contain a full fourth of the inhabitants of the land. In the older States, any growth which the approaching census may show will be seen to be due to the cities, for the rural districts are fortunate if they hold their own. Not only are our towns thus absorbing yearly a larger proportion of the population, but a modern municipality is a much more complicated machine than the city of a hundred, or even of fifty, years ago. New wants have sprung up, requiring new instrumentalities for their satisfaction; and the socialistic tendency, which is becoming so strong, leads ever more and more to multiplying the functions and enlarging the operations of the public authorities. Thus the question as to the wise and efficient administration of large cities grows more intricate as it grows more important. It cannot be shirked, and on its proper solution will depend in great measure the verdict of mankind as to the success or failure of the grand American experiment of self-government.

It is not that municipal troubles are the symptoms of a spe-

cial disease or the outgrowth of special causes; it is simply that great cities are the weak spots, where functional and constitutional disorders manifest themselves soonest and in their worst forms. The cure is not to be sought in local applications, which, at most, even when valuable in themselves, are merely palliatives. To be efficacious, the remedy must be constitutional; it must be directed to the causes of which the visible effects are only the indications. These causes are manifold, but the most potent of them may be traced to a habit of mind which, for want of a better appellation, we may call fetichism.

One development of this fetichism ascribes to political institutions a sort of supernatural power. This has infected the speculations of almost all philosophers since the time of Plato, and perhaps has never been so strong or so widely diffused as it is to-day, especially among the believers in popular government. It seems to be thought that if a constitution theoretically perfect can be framed, it may be suffered to run itself; that it will have an inherent virtue to suppress the wicked and to elevate the good; that if evils occur they are attributable to some defect in institutions, and that they can be remedied with a few strokes of the pen when they become sufficiently onerous to arouse the attention of the majority. Far be it from me to deny the power of institutions in molding human character and in affecting human happiness, or the benefit which may be derived from well-devised reforms; far be it from me to decry popular government, in which I am a firm believer; but nevertheless we must remember that there is a partial truth, which we are apt to disregard, in the couplet—

> "For forms of government let fools contest;
> Whate'er is best administered is best."

An enlightened despotism, the ideal of the so-called philosophy of the Carlyle school, would undoubtedly be the best, if the limitations of human nature did not always prevent the despot from being sufficiently enlightened for the proper discharge of his unlimited responsibilities. Self-government, by dividing and decentralizing responsibility, affords a fairer opportunity for good government; and the admirable structure of our Constitution, with the scope which it allows to the individual citizen to make

his influence felt in both local and general matters, unquestionably presents, with the possible exception of the Swiss Federation, the nearest approach to an ideal government that human wisdom has yet devised; but, for all that, its working will be good or evil as it is administered well or ill. The trite phrase that eternal vigilance is the price of liberty, has a significance beyond what is usually attributed to it, for liberty imposes on the citizen duties which he can discharge only by incessant attention to the common weal.

Human nature is the same under all institutions. The ambitious and the unprincipled adapt themselves to their environment, and find means for the attainment of their ends. The favorite and his minions under a despotism, become bosses under a republic—men who learn how to lay hold of the secret springs of power, whether these lie in the favor of princes or in the manipulation of caucuses, and who plunder the public to keep it enslaved. What creates the peculiar class of the American boss and gives him his influence, is the careless indifference of one portion of the community, largely due to the fetichism of which I have spoken, and the blind partisanship of another portion. Here we encounter another form of fetichism. Government by parties would seem to be indispensable in the existing stage of political development. Parties are undoubtedly admirable things in their proper character of instruments to an end, but unfortunately party organization has become, in the eyes of a large portion of the community, an end in itself—a fetich which is worshiped irrespective of the objects for which the party was ostensibly organized. When the fetich-worshiper succeeds in establishing his special idol in the national shrine, he expects it in some supernatural way to shower blessings over the land; if he is defeated, he regards the elevation of the rival fetich as the triumph of a demon whose malignity in some occult manner will blight the national prosperity and ruin the national morals. Such being his frame of mind, the men whom he votes into office, and the means whereby success may be secured, become to him matters of comparative indifference. He is thus material suited exactly to the requirements of the boss, for he is no longer a freeman exercising intelligently the priceless right of suffrage,

but a slave to party, driven to the polls to vote as his masters may dictate. Those masters are the bosses, who could not exist without him, yet who naturally regard him with the contempt which he deserves. They are under no illusions; they know how worthless is the fetich which he worships, and of which they are the priests, and they despise him for the blind credulity with which he submits to their orders when speaking in its name.

These two varieties of fetichism are the main causes of our political troubles. The results are visible throughout the land, but they make themselves more apparent in the municipalities, for many self-evident reasons. In the eager struggle and excitement of city life, the citizen more readily yields to the temptation of neglecting his political duties, and comforts himself with the assurance that our institutions can take care of themselves. He is only one molecule in so large a mass that his influence and his vote seem of infinitesimal importance. The complexity of municipal machinery is such that to exercise the franchise intelligently, and still more to attend primary meetings and understand their intrigues, would require more time and thought than he could conveniently bestow. If inert, he consequently stays at home; if a partisan, he goes to the polls and votes the regular ticket with the proud consciousness of discharging a public duty. On the other hand, the boss finds in the city a field eminently suited to his peculiar gifts. The prizes are greater, and the dangers of detection less, than in the rural districts. The flock of sheep to be shorn is larger, and more helpless in proportion to its size. The political machine is so intricate that only a professional can comprehend and manipulate it. Thus, in the survival of the fittest, the shrewdest and most audacious bosses are developed in the cities or are attracted to them, and the evils of their rule are greatest; yet none the less the causes of mischief are general and not local, and if a cure is to be found, it must, as I have said, be constitutional and not topical. Amendments to city charters and modifications of municipal regulations, are often but doubtful expedients, and at best give relief only until the bosses devise means to circumvent them. The foundations of pure government rest on public virtue, and if that is lacking the superstructure must needs totter.

Yet I, for one, do not believe in the decay of public virtue. I believe that the world at large is constantly, though slowly, growing wiser and better, and I see no reason to think that our land is an exception. We are apt to be prophets of evil because we feel acutely the abuses existing around us, while forgetting those of the past; and we are thus led to imagine that public life is becoming more debased and corrupt. This is wholesome if it nerves us to stronger effort to promote righteousness; but it is more apt to lead to apathy and hopelessness, and the average man will struggle with more energy when convinced that he is on the winning side. Confidence in the ultimate triumph of right over wrong is therefore a frame of mind which it is wise to cultivate, and I see no reason for doubting it. The civil war, though glorified by a splendid outburst of patriotism, left behind it many evils, as all great wars must do. Not only was there the inevitable corruption attendant upon gigantic expenditures hastily made, but the overmastering passions of the time naturally erected a false standard of public opinion. Everything might be permitted to him who was sound on the main question, for all else was insignificant in comparison. It was hard for us to outgrow this fierce partisanship, and some of us have never done so; but it is rapidly declining, and the younger generation of voters has happily escaped its influence. To the conscienceless politician, who trades on the passions and prejudices of the public, no opportunity could be more tempting than that afforded by the war, and he made the most of it. Bosses had existed before, but now they came to the front with a boldness previously unknown. They have had their day, but it is waning. Every year sees an increase in the mass of intelligent, independent voters who cast their ballots according to their convictions and not at the dictation of the political machines. When parties are nearly equal, the independent voter holds the balance of power and must be reckoned with. He strikes down a candidate of conspicuous unfitness, and the lesson is not forgotten; he demands a measure which will aid him in future struggles, and his demand is complied with after more or less resistance. Every step he advances gives him a vantage ground for the next conquest. The future of the Republic is with the independent voter.

To descend from generalities to particulars, there are at present four measures for which the independent voter should strive with unremitting ardor, each of which is fitted to diminish some of our existing evils. These are civil-service reform, the Australian ballot, the restriction of the liquor traffic, and the regulation of immigration, with modification of our naturalization laws. The beneficial effects of these measures would be felt everywhere, but chiefly in the cities, where they would do much to facilitate the introduction of purer and more efficient administration. But these, like all other laws, are merely instruments. They are not automatic; to be efficient they must be used, and used properly, and such use can be made only by unceasingly vigilant public opinion, manifesting itself in constant action.

Of these measures, civil-service reform is the most urgent and the most efficient for good. To deprive the bosses of the control of "patronage," and of their consequent ability to maintain their henchmen and heelers at the public expense, is the readiest method of destroying the political machines and of restoring politics to its true function of wisely administering the affairs of the people, instead of being, as at present, for the most part, a selfish struggle for office. Yet the virus of the spoils system has so thoroughly infected our national life that it will yield only to heroic treatment. The reformer must resolutely determine to regard the question as the controlling one, and must strike unflinchingly at all candidates, whether Democratic or Republican, who cannot be trusted to enforce existing laws and to be guided by their spirit in dealing with the unclassified service. Party managers will not surrender control over the spoils until they recognize that the people are thoroughly in earnest, and this conviction can be impressed on them only by successive defeats. Usually the party in power is the one to be struck at, as it is, for the moment, the offender to be punished.

Yet all these, and all other devices, will be neutralized unless a check be put on the tendency, now so visible, to experiment with state socialism. This is in the air, and schemers and dreamers of every degree of irrationality are busy with their nostrums for the cure of all political and economic evils. Government ownership of telegraphs and railroads, government loans on farm lands, and

government advances on farm produce are proposed on the one hand, and, on the other, municipalities are expected, or are urged, to supply light and heat and water and locomotion and other public wants. Jeffersonian Democracy was right in seeking to restrict and simplify as much as possible the functions of government. More or less corruption there always has been in the management of public affairs, and always must be so long as human nature remains unregenerate. Government itself is an evil—a necessary evil incident to human imperfection—and the less of it we can get along with the better, for thus only can we reduce its accompanying abuses to a minimum. Every added function introduces additional corruption and renders detection and purification more difficult. The paradise of the boss would be a community organized on the Bellamy pattern.

HENRY CHARLES LEA.

ENCROACHMENTS OF THE SEA.

WITHIN the last two years a naval vessel was swamped in a dry dock in the lower Chesapeake that was supposed to be well beyond the reach of the highest tides; portions of the great chain of metropolitan dependencies stretching from Sandy Hook to Barnegat Bay, if not to Cape May, have been partially inundated; the mechanical world has been delighted and diverted by the spectacle of a team of locomotives hitched abreast and tandem to a grand caravansary—a miniature city in itself—to move it beyond the reach of the waves; on the shores of the Gulf, between Mobile Bay and the mouth of the Mississippi, villas embowered in fragrant orange groves and moss-festooned live oaks, are menaced by like perils and overtaken often by like catastrophes; broad lagoons and marshes stretching along hundreds of miles of coast have been submerged within a generation; thirty-four years ago, on August 10th, Last Island, a health and pleasure resort of New Orleans, was swallowed by the storm waves, with most of its transient population—"the wealth and beauty of the Creole parishes"—and naught but a tide-washed bank remains to mark its site; and more than once during later years villages and settlements upon the Gulf shores and upon the delta islands of the Mississippi, have been swept from the face of the land and made the prey of the insatiable waters. All of these occurrences, and scores of kindred events not mentioned, have a common feature: in all alike the sea encroached upon the land.

An immediate explanation of each disaster is readily offered: a high, perhaps unprecedented, tide; an unusual storm; a long-continued in-shore wind, by which the waves were driven upon the coast; great floods in the rivers discharging into bays or sounds. These "theories," severally or in conjunction, are promptly seized by the reportorial imagination and set forth in the daily press. But these immediate explanations, ready and rational though they be, fail to tell us why each great flux of the

tides is unprecedented; why the waves of this decade wash hights beyond the reach of those of the last; why the land, fortified by every device which human ingenuity has been able to invent and human skill to apply, cannot hold its own against the ocean; they merely state, and do not explain, attendant conditions. The explanation that the ocean is overflowing the land by a secular Spring tide not yet fully in, or by reason of an ebb of the continent not yet fully out, is adequate; but it is a harsh, heartless, pessimistic explanation, opposed by the instinctive notions of the stability of the earth and the buoyant optimism with which vigorous-minded man is inspired. Such an explanation will not and should not be adopted without the most conclusive evidence. Yet the disasters are so many that it would seem wise to scan the evidence. Its aggregate volume is indeed far too great for record here, but the ascertained facts with respect to one or two typical coast stretches may be summarized.

1. Evidence of the encroachment of the sea upon the land is given by history. The older shore lines recorded in maps, deeds, and other documents do not coincide with the newer; and while in some cases the newer shore is locally pushed seaward across an estuary or in the line of a bar, the general change is one of expansion of the ocean at the expense of the land. Comparison of Long Beach, from Barnegat Inlet twelves miles southward, upon the United States Coast Survey maps of 1839 and 1871 respectively, shows that during the intervening period of thirty-two years the land line retreated from 0 to 930 feet, or an average of 545 feet—more than one tenth of a mile. Thence southward to Little Egg Harbor the land line indeed advanced a little way seaward; but here as elsewhere the landward shifting far exceeded the seaward. Comparison of maps of a part of the shore of Cape May County, shows that in the century ending in 1866 Dennis Creek was shortened at its mouth 2,310 feet, and East and West Creeks each 1,880 feet; and that the shore in general receded three quarters of a mile for the surveyed stretch of three miles. In the annual report for 1885 of the State Geologist of New Jersey (the late Dr. George H. Cook, an eminently discreet investigator), many pages are devoted to accounts of coast changes

within the historical period, nearly all of which indicate considerable advance of the sea upon the land, either by the wearing away of shores or by the flooding of lowlands formerly beyond the reach of tide; and the conclusion is stated in these words:

"There is a general wear on the east shore, of the beaches along the Atlantic coast of New Jersey. As a result of this, and the action of wind and wave in carrying sand westward over the beaches, there is a change of position whereby most of what were formerly 'sand reefs,' are now mere accumulations of blown sand on the surface of a former tide marsh. This lateral movement has, in many cases, amounted to more than the breadth of the beach since the settlement of the State, and it is at present going on with undiminished activity. Although in places there has been a certain amount of eastward growth, this has in all cases been dependent on the action of currents which are governed by such local conditions as the position of sand bars, and may at any time be converted into agents of destruction. We must therefore accept it as a rule, on the east shore, that loss is absolute and gain but relative." *

Further southward there are parallel, though perhaps less decisive, indications. Along the Carolina coast the advance of the ocean upon the insular rice plantations has been noted and discussed by observant residents during three generations. About Florida the indications are less decisive, but on the central Gulf coast they again become evident even to casual observation. The general facts, gathered by hundreds of observers and garnered in dozens of printed records, are thus graphically summarized by Lafcadio Hearn:

"The sea is devouring the land. Many and many a mile of ground has yielded to the tireless charging of Ocean's cavalry. Far out you can see through a good glass the porpoises at play where of old the sugar cane shook out its million bannerets, and shark fins now seam deep water above a site where pigeons used to coo. . . . Grande Terre is going; the sea mines her fort, and will before many years carry the ramparts by storm. Grande Isle is going, slowly but surely; the Gulf has eaten three miles into her meadowed land. Last Island has gone!" †

2. Equally significant evidence that the tides now run higher than of old is given by submerged forests and meadows. In the official report for 1882 of the geologist mentioned above, there are accounts of ancient meadows and forests considerably below ordinary high-water mark, recently exposed by the wear of the

* Page 93. † "Harper's Magazine," August, 1888, p. 735.

waves upon the coast. None of the numerous stumps are of brine-loving trees, but only of such as grow well above the reach of tide; and some of them had been cut with the ax. The meadows bear abundant impressions of the hoofs of unshod horses and cattle, though the waters have now so far flooded the beach that it is practically abandoned by men and animals. Dr. Cook adds:

> "This fact furnishes another proof of the slow advance of the sea upon the land which is going on along the entire eastern sea coast of the United States, and a reason for the increased effect of the waves in wearing away the shore." *

The tide-flooded forests and swamps of the Carolinas have been described and discussed by Toumey, Holmes, and others; and although the flooding has been by one student ascribed to the breaking down of wave-built barriers during great storms, the evidence is none the less decisive, for the alternate building and breaking down of barriers is the play of the advancing ocean. To-day the segment of the Gulf called Mississippi Sound has partly undermined Pascagoula City, at the mouth of the river of the same name; lines of piling, sometimes two and three deep, supported by fascines and protected by jetties, vainly strive to shield other portions; the waves are rippling and anon thundering over aboriginal habitations marked by shell heaps; charming villas flanking the sun-lit coast are threatened; a mile east of the village, the tap roots of upland pines are bound together by a younger mat of salt-swamp sod; and all, with a long-forgotten bit of "corduroy" road, are revealed by the retreat of a shifting sand levee a foot or more below mean tide.

Even more significant are the buried cedar swamps, which have given rise to a singular industry—the literal mining of timber. At several points in eastern New Jersey enormous quantities of white cedar, liquidambar, and magnolia logs, sound and fit for use, are found submerged in the salt marshes, sometimes so near the surface that roots and branches protrude, and again deeply covered with smooth meadow sod. Many of the trees overthrown and buried were forest giants. In the Great Cedar Swamp, on the creek of the same name, the logs reach a diameter

* Page 83.

of four, five, and even seven feet, and average between two and three feet in thickness. Sometimes the ancient forests are above tide level, and indicate only the slackening flow of the streams; but this is one of the ways in which the rise of the waters is felt upon the land.

But only a tithe of the forest kings sacrificed to implacable Neptune are honored even by unmarked tombs. All along the New Jersey coast from Cape May to Raritan River, along the Virginia and Carolina shores, and on the mainland and the half-drowned keys confining Mississippi Sound, stumps of upland trees peep from beneath the tidal waters; or aged oaks, cedars, and liquidambars, still living, though stunted and gnarled by the poison of the brine, stand here and there to give rude measure of the rate of Ocean's advance. Reviewing these measures in 1868, Dr. Cook estimated the rate of subsidence of the land at about two feet per century, or a quarter of an inch per year.*

3. Evidence of the encroachment of the seas is found also in the geography of the coast. One of the most strongly-marked natural boundaries on the globe divides the middle Atlantic slope into an ocean-fringing lowland, known to geographers as the coastal plain, and an upland springing some hundred feet above tide at its margin, and rising in the interior. The same line marks the inland reach of tide water, the series of cascades and falls known as the "fall line," and the zone of deflection of drainage at which the Delaware, Schuylkill, Susquehanna, Potomac, and other rivers, after maintaining direct courses through Appalachian ranges and Piedmont highlands alike, are turned at right angles literally by a sand bank little higher than their depth. This geographic feature has materially affected the culture of the country. The pioneer settlers ascended the tidal canals to the falls of the rivers, where they found, sometimes within a mile, clear fresh water, the game of the hills and woodlands, the fish and fowl of the estuaries, and abundant water power and excellent mill sites, easy ferriage and practicable bridge sites. Here the pioneer settlements and towns were located; and across the necks of the inter-estuarine peninsulas the

*Ib., page 362.

pioneer routes of travel were extended from settlement to settlement, until the entire Atlantic slope was traversed by a grand social and commercial artery stretching from New England to the Gulf States. As the population grew and spread, the settlements, villages, and towns along this line of nature's selection waxed, and many of them yet retain their early prestige; for Trenton, Philadelphia, Wilmington, Baltimore, Washington, Fredericksburg, Richmond, and Petersburg are among the survivors of the pioneer settlements, and the early stage route has become a great railway and telegraph line connecting North and South, as they were connected of old in more primitive fashion.

Now the subaërial and subaqueous surface of the coastal plain set off by this trenchant boundary is cleft by a labyrinth of estuaries—Long Island Sound, Kill von Kull, Arthur Kill, Raritan Bay, Delaware Bay, Chesapeake Bay with its confluent estuaries, the tidal Potomac, etc.—which are recognized by all geographers as "drowned" rivers; and the Hudson and Delaware have narrow, clear-cut channels prolonging their present land-bound courses scores of miles beyond, and hundreds of feet below, the present coast line. Indeed, the lowland fringe stretching from Cape Cod to Cape Hatteras is but the higher part of a great terrace or bench, mostly submarine, skirting the continent in a zone 75 to 150 miles broad. It is known to have been now land and again sea bottom, in many alternations, ever since the middle of the Mesozoic time of geologists; its surface is veneered with tide-scattered sands and gravels; and its drowned rivers indicate that the ocean is rising upon it to-day so rapidly that their channels remain unfilled by the sediments of the sea.

Related evidence appears on other shores; and nowhere is it more curious or decisive than along the Gulf coast east of the mouth of the Mississippi. The coast of Florida is skirted by elongated peninsulas and islands called "keys," separated from the mainland by sounds a fraction of a mile to three or perhaps five miles in width. Thus, in western Florida and Alabama, the bays of Choctawhatchee, Pensacola, Perdido, and Bon Secours are separated from the Gulf by characteristic keys, and nearly or quite connected by narrow sounds; but west of Mobile Bay the keys quickly retreat to five, ten, even fifteen miles from the

mainland, and form the sea islands, Dolphin, Petit-Bois, Massacre, Horn, Dog, Ship, and Cat; while the intervening Mississippi Sound is a great slice of the Gulf, the rapidly-encroaching sea having outstripped the slow-moving keys and left them far behind. And most of the water courses of the eastern Gulf water shed, except the detritus-laden Mississippi, are, like their fellows of New Jersey, drowned rivers, with their mouths transformed into estuaries or lagoons; and the mainland is trenched with tidal canals where recent rivers ran.

4. Evidence of similar import is found in structural geology. Rivers gather detritus from the mountain top, the hill side, even the lowland field, and transport it seaward, rapidly during freshets, slowly at low stages; but much of the material is always dropped by the way, a part to be again taken up during later freshets, and another part to lie long and form new lands in a belt or "bottom" of sand, silt, and clay, commonly called alluvium. In the lower course of the river, where the declivity is slight, the alluvium accumulates rapidly, and is pushed out into the sea, bay, or lake, as a delta, like that of the Mississippi, the Nile, or the Ganges. But along the Atlantic slope between Capes Cod and Hatteras, and to some extent further southward, the rivers are not flanked by alluvium in their lower courses, and are destitute of deltas. On the Hudson, Delaware, Susquehanna, Potomac, and James, there is indeed a surprising dearth of the ordinary fluvial deposits. Year after year the rivers drop into their estuaries silt, sand, pebbles, ice-borne bowlders, unquestionably by the hundred tons, yet the receptacles are never filled, the tidal trenches barely shoaled. These rivers are anomalous; but the anomaly presents its own explanation: the rivers fail to fill their estuaries because the valley bottoms sink at least as rapidly as the detritus is poured in. Sedimentation in some of the rivers falling into the southern Atlantic and the Gulf indeed keeps pace with the sinking of the channels, and the bays are short and shallow, or pygmy deltas appear. The vast volume of detritus poured from the Mississippi far exceeds the capacity of the slowly-deepening trough, and so the Mississippi builds a delta after the normal habit of rivers. By the aid of its

bayous and distributaries it has wandered from side to side, adding material here, removing a little there, planing and fashioning the new-made land, but ever building up, and ever pushing out; yet when, through its own caprice or the intervention of man, the great river long abandons any of its radial lines of delta-building, the Gulf waters gradually invade the neglected lowland in lines of swamps and lakes like the modern Borgne and Pontchartrain. Only for a little space can the land hold its own against the hungry waters.

There is another way in which structural geology gives similar evidence. The coast line about Barnegat Bay, about Pascagoula Bay, or on any other typical coast stretch, is an alternation of low-cliffed headlands and reedy lagoons, separated from the tidal waters by low sand banks. Now, when the land stands stationary, the feeble waves and sluggish currents of a shoal offing are unable to clear the bases of the cliffs, the talus is in time bound together and protected by sward and shrubbery, and sloping banks and shelving shores are formed; while if the waters are rising relatively to the land, the wash of the waves at the cliff base keeps pace with the weathering at the cliff summit, and the stimulated currents sweep into estuaries and deep waters the steady gains of waves and weather. So, too, the surf builds a barrier of sand against the entering streamlet. If the land is stationary, the streamlet alternately drops its burden of sand and silt during each high tide, and collects it again at the ebb, and the barrier remains low and the embouchure of the stream narrow; while if the waters are encroaching, the flux of the stream going with the ebb of the tide fails to remove all the detritus, and it gradually accumulates to form a tidal meadow, and the wave-built levee is pushed further and further inland until the wooded hill sides are choked by the swamp muck of the widening lagoon, or until both forest roots and swamp sod reappear on the seaward side at a depth below tide, affording a rude measure of the rate of the land's sinking.

5. Circumstantial evidence that certain parts of the Atlantic and Gulf coasts are sinking, is found in dynamic geology. During the first period in the development of geologic science,

the sculpturing of the land and the accumulation of sediment were ascribed to great *débâcles*, or waves of translation, sweeping the earth from equator to poles; and the *débâcles* were ascribed to, or at least connected with, unexplained uplifting of continents and mountains and downthrowing of sea bottoms. This was the period of catastrophism. Gradually students of earth science, with Lyell at their head, perceived that the valleys are carved by the streams which now occupy them, that the sculpture of the land surface tells of rainfall and storm work perhaps not more rapid than that of to-day, and that the vast bodies of sediment forming the continents are like, both in kind and degree, those now accumulating in lakes and bays and on Ocean's shores; and with this perception came the realization that the surface and sediments of the earth were formed by agencies little if at all more potent than those now at work. This was the Lyellian period, or period of uniformitarianism. When American geologists, with Powell at their head, began to decipher the records of mountain-building inscribed in the tilted, fractured, and contorted sediments of past ages, they gradually perceived that when a continent or mountain range is lightened by the denudation of rivers, it rises, and that when a sea bottom is weighted by the deposition of sediment, it sinks; and indeed that the entire earth crust is in a condition of hydrostatic equilibrium, and relatively as sensitive to changing pressure as the beam of the assayer's balance. As this perception came it was realized that mountain-making, like land sculpture and sediment-forming, depends upon agencies in daily operation upon land and sea. This is the Powellian period, or period of rationalism in dynamic geology. It leaves unexplained but a single category of earth-building processes—the initial uplifting of continents by which the transfer of detritus is inaugurated.

Now the coastal plain from Long Island to Cape Hatteras is the focal tract upon which the great rivers of a vast hemi-ellipse concentrate their mud-charged currents; and a yet smaller tract in the Gulf coast is the *centrum* upon which the rivers of a third of the country converge, and about which their untold millions of tons of detritus are dropped. If the rational principle developed by Powell and now accepted by every competent geologist

in every land be true—if it be true that weighted areas sink beneath a never-ceasing accumulation of load—then these tracts must be undergoing depression.

6. Direct evidence of the sinking of the Atlantic coast is given by the configuration of the land. Three periods in the development of geologic science have been characterized; a fourth is dawning. In two intellectual centers at home and one abroad—Washington, Cambridge, Paris—it has come to be recognized that world history may be read from the configuration of the hills as well as from the sediments and fossils of ancient oceans. The volcanic cone displays characteristic features; the uplifted mountain range has a characteristic physiognomy; the ice-swept hills and valleys exhibit unmistakable lineaments; and the tireless stream and frequent rainstorm give unmistakable form and expression to the face of nature. To-day these features, lineaments, forms, physiognomy, and expressions are discriminated and interpreted by half a dozen geologists, and thereby the field of the science is broadened by the addition of a coördinate province—by the birth of a new geology, which is destined to rank with the old, but for which no better name has yet been found than "geomorphology."

Now the student of earth forms perceives at a glance that the topographic configuration of the coastal plain was developed, the waterways outlined, the valleys carved, and the uplands fashioned when the land stood higher than now; and that the stream-carved configuration—which is never imitated by any agency operating below tide-level—passes into the sea or under the alluvium lining the estuaries. He perceives at a glance, too, that the topographic configuration of the Piedmont zone on the further side of the "fall line," was developed when that part of the continent stood lower than now, only the shorter gorges below the cascades of the Schuylkill, the Susquehanna, the Potomac, and their neighbors post-dating the uplift of the land. So the New Geology not only corroborates other evidence in the strongest manner, but at the same time locates the line along which the sinking of the coast is last felt; and this line is the wonderfully trenchant natural and cultural boundary already described.

On reviewing the evidence, it appears that historical records, submerged forests and meadows, geographic configuration, the phenomena of structural geology, the principles of dynamic geology, and topographic forms, all attest that in portions of the Atlantic and Gulf slopes the sea is encroaching upon the land. This evidence is not indeed all equally clear and apposite. The historical evidence is weak in quality because of the inaccuracy of early surveys, early maps, early tide marks, and early records of all kinds; but its volume is vast. Even by itself the historical record shows that, albeit imperceptible in a single year, the advance of the sea is considerable when decades are compared, and enormous when comparison is made between centuries. The evidence of submerged forests and meadows has not always been interpreted alike; but the cases are legion, their significance often unmistakable, and in the best-observed regions the testimony is conclusive. The evidence of geographic configuration —of drowned rivers, half-flooded islands, and outlying keys— proves that the land is either recently submerged or now sinking. The evidence of structural geology, and particularly that of the dearth of alluvium in the absence of deltas at the mouths of mud-charged streams, is of like tenor and value. The value of the evidence of dynamic geology depends upon the validity of the Powellian principle, which all competent authorities accept, though some might question its quantitative sufficiency in the given case. The evidence of geomorphology—of the forms of hills and the features of plains—is eminently apposite, clear, and conclusive; it applies not only to the coast, but to the entire coastal plain; and it might be made to give rude measure of the rate and amount of the earth movement. But however the several lines be weighted, the evidence is consistent and cumulative, and permits no escape from the conclusion that certain portions of our coast are yielding before advancing seas.

On reviewing the sum of evidence by areas, it is found to prove oceanic encroachment along the Atlantic coast from Sandy Hook to Cape Henry, and along the Gulf coast between the mouth of the Mississippi and Mobile Bay; to suggest a like condition all the way from Cape Cod to Cape Fear; and to give little indication as to change in the relations of sea and land about

the shores of the Florida peninsula. Concerning the northern New England coast, the western Gulf coast, and the rugged promontories and flat sand beaches of the Pacific coast, where the records are scanty or equivocal, "this deponent saith not."

Men who haunt the shores for pleasure or for profit, naturally inquire the rate at which the sea is encroaching upon their domain. The cautious estimate of the rate at which the New Jersey coast is sinking made by the official geologist of that State, is two feet per century. Now the mean seaward slope of the coastal plain, including its subaërial and submerged portions, is perhaps six feet per mile; so that each century's sinking would give a third of a mile, and each year a rod, of lowland to the ocean; and this would appear to be below the rate of encroachment indicated by comparison of maps. This is probably the maximum rate for this country. Pending further observation and the scanning of other records, little more can be said.

Men of maritime lands naturally inquire whether the continent settles easily and uniformly, or whether it descends by successive starts at intervals; for rapid mass movement in the earth is justly believed to beget the earthquake, and perchance the tidal wave; but upon this point the evidence and science (aside from a hypothetical presumption in favor of *per saltum* movement) are silent. Last Island was indeed overwhelmed when, after a ten days' northeaster which forced the Gulf waters offshore and allowed the water-heavy silts and sands to settle in the lighter air, the wind veered to the south, and the surf swept back over sunken shores and delta islands; yet there were no deep-seated earth tremors. The land went down in the lower Mississippi region, it is true, during the greatest of American earthquakes—that of New Madrid, in 1811–13; but it has not been learned whether the earthquake caused the sinking or the sinking the earthquake. Slight quivers of earth, too, appear to run along the "fall line," and are commonly recorded many times annually in its vicinity; but it is more probable that they represent gradual and easy relief of earth stresses than that they are premonitory of a catastrophe.

Prophecy of evil is an ungrateful and ungraceful task, before

which Science justly quails, for Science is no longer content only to make two blades of grass grow where one grew before. She is ambitious also so wisely to use the productions of the earth that one blade of grass will fill the place filled by two before, and moreover to wring from barren rocks and desert sands artificial substitutes for natural blades of grass, and thus to multiply indefinitely the gifts vouchsafed by unaided nature. So her devotees are the most lightsome of optimists, the most sanguine of philanthropists. But optimism must not be confounded with short-sight, or philanthropy with foolhardiness.

There is a broad lowland stretching from Sandy Hook to Cape Henry, and running inland to the line of metropoles, and another washed by Mississippi Sound, upon which the sea is encroaching. They are wave-fashioned plains, but recently wrested from the ocean, and Ocean reclaims its own. Already its octopus arms have seized the lowlands in horrid embrace, and day by day, month by month, year by year, generation by generation, the grasp is tightening, the monster creeping further and further inland. Each average year the water mark advances a rod. The seaside cottage with a broad lawn before it has an "expectation of life" of a decade or a generation; but the cottage at the verge of the cliff may go in a year and must go in a lustrum, unless human devices outwit and overpower the waves for an exceptional period. On most other eastern and southern coasts the waves are also encroaching, but their progress is slower. And the ocean's power is too great for puny man to oppose successfully; he can only provide against, and slowly retreat before, the invasion.

W J McGee.

PUBLIC CONTROL OF THE TELEGRAPH.

CHINA is the only country in the world in which the postal service is conducted by private enterprise. The only country in the world, of any importance, in which the telegraphic service is so conducted, is the United States. In very nearly all the civilized lands these two functions are held to belong properly to government. Even China concedes this, at least in part, as to the telegraphs. Why the United States should be so far behind the rest of the world in this important matter, is not easily accounted for. Perhaps the best explanation is, that when the American colonists achieved their independence they had suffered so much from governmental control that they wished to reduce it to the minimum. Agriculture was at that time almost the sole occupation; fertile land was to be had in such abundance for nothing, that every man who desired could own and conduct his own business; and the spirit of industrial independence was stimulated to such a degree that the general sentiment was, every man for some business, and every business by some man. The utilization of steam, electricity, and machinery, and the specialization of industries requiring the coöperation of great armies of workers with vast capital in the performance of functions necessary for all, have since that time developed the economic condition under which some lines of business become in their nature monopolies, and are therefore best conducted by government. The natural or the artificial scarcity of land in European countries has enabled their people to perceive earlier than we a truth which the accessibility of an abundance of land has rendered obscure to us, and in the practical application of this truth the telegraph has been among the first things to receive their consideration. The relation of the various countries to the ownership of the means of electrical communication is shown in the following table, which gives the latest statistical data obtainable upon the subject, mainly those for the years 1887 and 1888:

Countries.	Total Miles of Line.	Total Miles Owned by the State.	Total Miles under Private Enterprise.	Percentage Owned by the State.	Number of Messages.
Argentine Republic,	14,700	7,300	7,400	50	736,329
Austria-Hungary,	23,489	23,489	.....	100	11,052,963
Belgium,	3,900	3,900	.....	100	6,811,534
Bolivia,	925	.....	925	...	.....
Brazil,	7,539	7,539	.....	100	528,161
Chili,	9,000	6,735	2,265	75	572,333
China,	4,100	2,000	2,100	49	.....
Colombia,	2,360	2,360	.....	100	300,813
Costa Rica,	525	400	125	76	112,639
Denmark,	9,348	2,632	6,716	28	1,293,125
Ecuador,	875	775	100	88	.....
Egypt,	3,522	3,172	350	90	601,861
France,	53,845	53,845	.....	100	32,853,872
Germany,	55,748	55,748	.....	100	21,750,348
Great Britain,	30,430	30,430	.....	100	53,403,425
Canada,	28,489	.....	28,489	...	4,052,384
British India,	30,034	30,034	.....	100	2,516,826
Australasian Colonies,	49,233	49,233	.....	100	9,347,945
Greece,	4,300	1,100	3,200	26	789,566
Guatemala,	1,848	1,848	.....	100	406,533
Honduras,	1,717	1,717	.....	100	44,366
Italy,	20,316	18,869	1,447	92	7,586,978
Japan,	6,855	6,855	.....	100	4,977,119
Mexico,	27,861	19,272	8,589	69	.....
Netherlands,	7,240	4,700	2,540	65	3,703,024
Nicaragua,	1,300	1,300	.....	100	.....
Paraguay,	92	92	.....	100	31,857
Persia,	3,824	2,674	1,150	70	75,509
Peru,	1,382	1,382	.....	100	.....
Portugal,	3,210	3,210	.....	100	1,730,107
Roumania,	3,372	3,372	.....	100	1,256,693
Russia,	76,650	73,000	3,650	96	10,290,790
Salvador,	1,443	1,443	.....	100	151,526
Siam,	1,000	1,000	.....	100	.....
Spain,	11,512	11,512	.....	100	3,549,860
Sweden and Norway,	10,324	7,708	2,616	75	2,103,955
Switzerland,	4,992	4,992	.....	100	3,331,155
Turkey,	14,617	14,617	.....	100	1,259,133
United States,	248,920	3,000	245,920	...	80,000,000
Venezuela,	1,800	1,800	.....	100	.....
Other countries,	33,358	30,715	2,643	92	.....
Totals,	815,995	495,770	320,225	61	.....

The table shows that 61 per cent. of the telegraph lines of the world are owned and operated by governments. Of the sum total of lines, those in the United States constitute more than 30 per cent. Leaving this country out of consideration, about 88 per cent. of the remainder is under the control of governments, or, leaving the United States and Canada out, fully 95 per cent.

is owned by governments; for in those countries which are credited in the table with lines under the control of private enterprise, many of the lines are owned by railways, and are employed mainly for railway purposes, although they serve commercial uses under an arrangement with the governments. There are at least 2,500,000 miles of wire in use in the world. In China the lines are owned by the government in connection with merchants' syndicates, but they are virtually under the control of the government. In Greece and in Denmark the land lines are owned by the state, while the cables connecting the islands with the mainland are under private enterprise. The 3,000 miles of line in this country owned by the government are used for military purposes in the West, and for meteorological service on the Atlantic coast. In a few countries commercial lines are owned both by the state and by private enterprise, and in a very few, of which Chili is an example, the two compete, but in most cases they work under an agreement as to rates.

Tariffs vary greatly. In North America the body of the message only is charged for; in other countries the address, or the signature, or both, are tollable. In the United States the toll ranges from 25 cents to $1 for 10 words, according to the distance; in the Argentine Republic it is 40 cents for 10 words, and 20 cents for each additional 10 words; in Denmark and in Sweden and Norway, 13.4 cents for 10 words, and 1.34 cents for each additional word; in Ecuador, 20 cents for 10 words; in Egypt, 49.6 cents for 10 words; in Germany, 1.4 cents per word, the minimum being 14 cents per message; in the United Kingdom, sixpence for 12 words; in the Cape colonies, one shilling for 10 words, and sixpence for each additional five words or part thereof; in Guatemala, 25 cents for 10 words, exclusive of the address; in Honduras, 25 cents for 10 Spanish words, and double that amount for English words; in Italy, 20 cents for 15 words, and one cent for each additional word; in Japan, four cents per word, including the address and signature; in Portugal, five cents for the first word, and one cent for each additional word; in Roumania, 1.56 cents per word; in Siam, from 35 cents to $3.65 per word; in Switzerland, one half-cent per word; in Turkey, two to four cents per word; and in Venezuela, 20 cents

for 12 words. In New Zealand messages are classified as urgent, ordinary, and delayed, the rates being respectively two shillings, one shilling, and sixpence, for 10 words, with a halfpenny for each additional word.

In about half of the countries the receipts of the telegraph department exceed the expenditures, and in the remainder they do not. The inference, however, is not necessarily that in the case of the latter the departments are not properly managed. Of some of them that may be true, but in all countries a large share of the messages is on public business. In Egypt, for example, in 1887, fully 56 per cent. were on state affairs, and only 44 per cent. chargeable to private traffic; and if the department were self-sustaining, the users of the telegraph would pay the cost of transmitting not only their own messages, but also those of the government.

Averages are of little value in determining distribution within a given country, but they may be useful in making comparisons between different countries. With such a purpose is given the subjoined table, showing, in selected states, the number of miles of line in the various countries relatively to each thousand of square miles of territory, the number of offices for each ten thousand of population, the average number of messages sent for each head of population, the average amount collected, and the average cost of sending a message. The last two items cannot always be shown with exactness, for the reason that frequently the accounts of the postal and telegraphic bureaus are united, as they must in the nature of things be in some degree, the same officials having charge of both, the operators in the smaller towns being also postmasters, and the salary and expense account of the two departments being often indistinguishable. Reasonable accuracy, however, can be attained.

The lesson of the table is that in mileage, relative number of offices, popular use of the telegraph, and cost of sending a message, we are not in advance of leading countries, and that we are even behind some of the inferior ones. So far as investigation has been made, the results show that throughout the world the government telegraphs are conducted efficiently, economically, and honestly. The users everywhere are satisfied with the serv-

ice, and there is no country which would any more consider a proposal to sell its lines to a company, than the people of the United States would entertain one to transfer their postal department to private enterprise.

Countries.	Miles of Line per 1,000 Square Miles of Area.	Number of Offices per 10,000 of Population.	Messages per Head of Population.	Average Toll per Message, including all Messages Sent.	Average Cost in Cents of Sending One Message.
Argentine Republic,.	16	1.7	0.185	$0.337	....
Belgium, ...	343	0.9	1.14	0.083	10.6
Brazil,.....	2.5	0.1	0.039	1.532	....
Costa Rica,.....	22.7	1.6	0.574	0.266	46.2
Denmark, ...	662	1.8	0.655	0.129	....
Egypt, ...	266	....	0.088	0.287	31.8
Germany, ...	264	8	1.16	0.32	....
Great Britain.....	251	2	1.43	0.178	17.6
British India,....	1.9	0.9	0.009	0.567	39.2
Queensland,.....	13.2	8	3.15	0.35	46
South Australia,.	6.1	8.4	2.39	0.495	....
Tasmania,.....	69	11	1.64	0.198	28.1
Victoria, ...	47	4.1	2.07	0.226	....
West Australia,..	3	9	7.5	0.332	28.3
New Zealand,....	40.5	7.2	3.04	0.357	26.1
Cape Colony,....	27.7	....	0.83	0.364	25.9
Greece, ...	172	....	0.4	0.224	27.3
Guatemala,.....	39.5	0.73	0.333	0.461	44.3
Honduras,.....	37	2.07	0.135	1.14	76.5
Italy,.....	178	1.2	0.256	0.326	28
Japan,.....	46.6	0.08	0.482	0.203	25.4
Netherlands,.....	57	1.5	0.83	0.127	16.5
Russia, ...	39.3	0.34	0.096	0.676	62.5
Sweden,.....	27.5	....	0.263	0.265	26.7
Norway, ...	45	1.8	0.477	0.272	35.7
Switzerland,.....	305	4.3	1.09	0.138	12.2
United States,.....	69	3.8	1.25	0.312	22.4

It is to England that we may look for the largest experience to guide us in this matter. The first telegraph line was opened in that country, by a private company, in 1846, and others quickly followed. By 1854 so numerous were the complaints of errors, extortionate charges, and inadequate facilities, that people began to think of governmental control. Suggestions of such control were repeated at intervals of a short time, each meeting with more favor than the preceding one—just as the sentiment has been growing in the United States—until the Edinburgh Chamber of Commerce, in 1865, brought the subject before Parliament in such a way as to command the approval of

public sentiment on the part of both the press and the people; and a bill was passed July 31, 1868, "to enable the Postmaster-General to acquire, work, and maintain electric telegraphs." Rates at that time were based, as here, on the distance—24 cents for 20 words or less, for 100 miles or under; 36 cents for 100 to 200 miles; and 48 cents for more than 200 miles. While the bill was pending in Parliament it met the most violent opposition from its opponents, and the arguments which they used were such as are employed in this country now. They said that it was not the business of the government to carry on the work; that it would be operated by the government at a loss; that it could be better conducted by private enterprise than by the public; that rates would be higher under state than under private control, and that, as a result, the use of the new means of communication would be relatively decreased rather than increased; that it was an arbitrary and unjust interference with private interests; that the companies had at great risk of capital established a new industry, and just as they were about to reap their reward the government proposed despotically to snatch it from them; that private enterprise was continually experimenting systematically and extensively to improve its appliances and its service, whereas the government, having no stimulus of competition, would be remiss in that respect; that the new department would be used as a political machine; that the secrecy of messages would be more likely to be violated; and that the companies could be sued for failure to perform their duty, whereas under governmental control no such redress would be open to the citizen. The advocates of the measure denied all this, and asserted that the exact reverse would in every instance be true. They declared that the telegraph was properly an adjunct of the postal department; that the lines could be extended, more offices opened, more business transacted at a profit, and more efficiently transacted, under state control; that as there would be no dividends to pay, the profits would be used in bettering the service; that vexatious delays would be less liable to occur; and that the confidence of the public in the maintenance of the inviolable secrecy of messages would be increased.

The bill as enacted into law provided for a uniform rate

throughout the Kingdom of 24 cents for the first 20 words, not including the address and signature, and 12 cents for each additional 10 words. This included the cost of delivery within a reasonable distance. Payment was to be made in stamps, and provision was made for receiving messages in street letter boxes, to be wired immediately after collection. Liberal provision was made for newspaper specials, and communications to news rooms, clubs, and exchanges; also for leasing private lines at an annual rental. The secrecy of messages was insured by making it a crime, punishable with one year's imprisonment, for an employee wrongfully to reveal the contents of any telegram.

The government at no time contemplated the construction of new lines, or any other plan than that which was carried out—the purchase of the existing lines. It was considered an injustice for the government, with its large resources, to compete with the corporations. It is not clear why any greater hardship is involved when the government with all its powers competes with a great corporation, than when a great corporation with its powers competes with an individual; but the English people held that such a course would be unfair. Neither did the original bill formally give the authorities a monopoly, although in effect it did, as the hopelessness of competition by the companies was apparent; and a year later a bill was passed giving the government the exclusive privilege of transmitting telegrams.

The terms were exceedingly liberal. The six telegraph companies received a sum equal to twenty times the net profits of the business for the year ending June 30, 1868; further, a sum equal to the estimated aggregate value of the quoted ordinary share capital of the company, reckoned on the highest quotations shown in the official lists of the London Stock Exchange on any day between June 1 and 25, 1868—dates which at that time were yet in the future; also, compensation for the loss of the prospective profits of the company on the ordinary shares, and any sum that might be determined upon in consideration of the efforts made by the company to establish a uniform shilling rate. Besides, special awards were made to companies for some valuable patents which they had, and all the salaried employees of the companies not needed by the government were awarded

pensions. The effect of these terms was to advance the shares on the Stock Exchange, so that the government enhanced the price of the article which it was about to purchase, besides giving to the companies a bonus equal to twenty years' actual profits, and a further bonus of twenty years' prospective profits. The railways were dealt with in an equally liberal manner, as an inducement for them to use their telegraph lines in future only for their own business.

Upon these terms the government acquired 77,000 miles of wire equipped with the best apparatus then known, and paid for the same $32,108,214. This was an average price of more than $416 per mile—a most exorbitant one, as is shown by the fact that the French government, which constructed lines for itself, had to pay for 68,000 miles of wire, with equipment, less than $66 per mile. What the English government paid more than $32,000,000 for, had cost the telegraph companies only about $11,000,000, and was then worth only about $8,000,000. The reason why England paid six times as much as France for her lines, was that the English government bought out companies which were paying 8 and 10 per cent. dividends; and it purchased not only the plant, but the franchises, the value of which the English people themselves had created.

Notwithstanding the enormously high price which the English paid for their lines, they are satisfied with their bargain. It is a noteworthy fact that every prediction made by the opponents of the change has failed of fulfillment, and that every prophecy made by its advocates has been more than verified. During the first year the number of offices was doubled, and since that time offices have been promptly opened wherever the public convenience required them, and in places where under private enterprise there would have been none. In 1885 the rates were reduced to sixpence for twelve words, and they are now the lowest in the world. The service is prompt, efficient, and accurate. There has never been even the slightest intimation that the telegraph is used for political purposes, or the slightest fear on the part of the people that their secrets are not safe with the government. The public look back with surprise on the time when the claim was made that the business could be

better conducted by private enterprise than by the government. Competition has not been found necessary to stimulate invention and improvement, for the engineers of the department are in the front line of electrical science, and improved devices not only follow one another rapidly, but they are immediately adopted. In fact, it has been found that the desire to increase the public convenience is a better stimulant with them than the demand of stockholders for greater dividends; and they serve the government more efficiently than they did a private company. The newspaper press is on a better footing than ever before, the provincial journals having a telegraphic service that would have been impossible under the former system. There is no opposition to the new order, except from a very few who lost valuable privileges by the change. Just as with us there are no post-office millionaires, and no speculation in post-office stock, so under the new order in England there are no telegraph millionaires, and no speculation in telegraph stock. The financial history of the department, and the expansion of the business since that time, are shown in the accompanying table.

Not only has the business been conducted at a profit, but it has expanded enormously. Within the years stated, the increase in population has been 18 per cent., the increase in the number of letters carried 70 per cent., and the increase in the number of telegrams 455 per cent. In the United States in the same time, the increase in population has been 50 per cent., and the increase in the number of messages 380 per cent. In the ratio of increase of messages to increase of population the English have beaten us three to one. The only thing they can regret is the too high price paid for the lines; for while the receipts in nineteen years have exceeded the operating expenses by £2,230,945, the interest on the purchase and the improvement money, mainly the former, has been £5,800,000, thus causing a deficiency. The present indebtedness of the department is about $50,000,000, which has recently been placed at 2¾ per cent. interest. With this low rate, and with the rapidly-increasing volume of business, a sinking fund may be established. But the fact is that at the end of nineteen years the government has nearly doubled its telegraph debt, owing mainly to its bad bargain.

Year.	Receipts.	Expenditures.			Deficiency.	Number of Messages.
		Operating Expenses.	Interest on Debt.	Total Expenditures.		
1870	£612,302	£350,376	£214,500	£564,876	*.....	9,850,177
1871	735,390	496,695	233,081	729,776	†.....	12,473,796
1872	973,332	833,908	258,391	1,092,299	£118,966	15,535,780
1873	1,049,162	956,170	270,981	1,227,151	177,989	17,821,530
1874	1,167,745	1,081,937	293,706	1,375,643	207,898	19,253,120
1875–6‡	1,533,982	1,430,710	294,905	1,725,615	191,634	20,973,535
1877	1,328,315	1,208,402	307,173	1,515,575	187,259	21,726,143
1878	1,352,669	1,227,560	314,175	1,541,735	189,066	22,171,867
1879	1,369,468	1,161,552	322,036	1,483,588	114,120	24,459,775
1880	1,469,796	1,173,287	326,417	1,499,704	29,909	26,547,137
1881	1,633,886	1,308,454	326,417	1,634,871	984	29,411,382
1882	1,654,391	1,440,498	326,417	1,766,915	112,525	31,345,861
1883	1,768,070	1,583,877	326,417	1,910,294	142,223	32,092,026
1884	1,789,224	1,808,921	326,418	2,135,339	346,114	32,843,120
1885	1,784,414	1,820,764	326,417	2,147,181	362,768	33,278 459
1886	1,787,264	1,832,402	326,417	2,158,819	371,554	39,146,283
1887	1,887,160	2,032,633	326,417	2,359,050	471,890	50,243,639
1888	1,992,949	1,999,034	326,417	2,325,451	332,501	53,403,425
1889	2,129,966	2,041,360	353,789	2,395,149	265,183	57,765,347
Totals,	£28,019,485	£25,788,540	£5,800,491	£31,589,031	£3,622,583	.....

We may profit by their experience. They had several companies to deal with; we have practically but one; and the cases are, therefore, different. The Western Union Telegraph Company is stocked and bonded for $100,000,000; the plant can be duplicated for about $35,000,000. With this difference between real and paper values, the purchase of the plant without scandalous jobbery is impossible. If the purchase were seriously contemplated, the shares would advance in price. The practical step is for the government to construct lines between the leading cities of the country, and to compete, as a determined opposition company would do, and as is contemplated by two fairly good bills now pending in Congress.§ When the shares of the Western Union shall reach a reasonable price in the open market, let the government buy them; then there can be no corruption. There is no danger of the shares going below their real value, and thus of any one being "robbed." Sixty-five American citi-

*Surplus, £47,426. †Surplus, £5,613.

‡Fifteen months. The fiscal year was changed in 1876 to terminate on March 31.

§House Bill 7,167, by Mr. Wade; and House Bill 7,846, by Mr. Taylor.

zens have a moral right to organize competition with the Western Union Company; have not sixty-five millions an equal right? The few holders of shares would lose money? Speculators take that chance knowingly. The people of the United States cannot guarantee profits on investments. "The widows and orphans with their little all in telegraph stock," are a myth; the deserving poor have no savings in speculative paper. A proposal to lease existing lines, or to "compensate" somebody for nothing, should not be entertained. When a new device is introduced by which one man does the work of ten, no one talks of compensating the nine men who are displaced, although they may have spent their lives in learning their trade, and may be too old to acquire a new one. If a means can be found of conducting the telegraph business more efficiently and more economically than now, there should be no thought of "compensating" the discarded method, beyond refunding the capital actually invested in the plant. Why should the people pay more for a thing than they can get another just like it for? Recent consular reports show that the civilized world is mortgaged up to nearly its full interest-paying capacity. The indications are that this country is but little if at all better off. We ought not, in initiating the government ownership of telegraphs and railways, to commit the unutterable folly of burdening with mortgages our children to the tenth or twentieth generation, because of a mere sentiment that a man who has pitched his expectations sufficiently high is entitled to get something for nothing, and that he ought not to be disappointed. And the telegraph offers a good opportunity for beginning aright.

BRONSON C. KEELER.

THE EXHAUSTION OF THE ARABLE LANDS.

NEARLY twenty years since, Gen. W. B. Hazen pointed out the approaching exhaustion of the arable lands of the United States, and was sharply criticised for certain statements as to the aridity and unfitness for agriculture of the lands west of the 100th meridian. Time and repeated attempts to subject such lands to cultivation, have shown the correctness of Gen. Hazen's statements and conclusions. A little more than a score of years since, Iowa, Missouri, Kansas, Nebraska, and the Dakotas constituted a vast district but sparsely settled, the area then in cultivation in those States being but little more than seven million acres; now, however, by the opening of new farms and the development of older ones, the area in staple crops is much more than one fourth of all the lands in the United States so employed. With such an area of the most fertile soils in the process of development, it is not strange that Gen. Hazen's views were looked upon as pessimistic; yet their correctness can no longer be questioned.

The writer has recently shown that the existing depression in agriculture is due, primarily, to an excessive development of these fertile districts; that agriculture and all related industries can be prosperous only when consumption balances production; and that an early equilibration is assured by the growing scarcity of tillable lands. Investigations undertaken solely with the view of ascertaining why the farmer is not prosperous, led irresistibly to the conclusion that the rapid increase of the cultivated area in the United States was the principal cause of the lack of prosperity among the farmers of Canada and Europe, as well as of the United States, and that the great reduction in the yearly accretions to such cultivated acreage was a sure presage of the early coming of the time when the farmer will be prosperous. Further investigations have developed the fact that the arable lands are being occupied at a rate which insures their complete

exhaustion at a much earlier date than has heretofore been deemed possible, with rapid reduction in the volume of exportable breadstuffs, and an entire and not remote cessation of such exports, to be followed by our entering the markets of the world for a portion of the wheat required for domestic consumption.

To understand the situation clearly, it is best to resort to tabular statements showing the increase in cultivated acres in different districts during designated periods, the rate of increase in each district in such periods, the aggregate of the additions to the cultivated acreage in each period, the yearly average of such additions for each period, the percentages of such increase for each period as well as the yearly average of such percentages, and a comparison of the periodical rate of increase of acreage with that of population. This is shown in the following table.

The adjoining exhibit, covering twenty-two years of greatest expansion in American agriculture, is divided into four periods, the first being seven years and each of the others five. In the seven-year period, population is found to have increased 18.2 per cent. and the cultivated area 20.2 per cent.; the drafts upon the arable lands, in the shape of additions to the acreage in staple crops, amounting to 2,724,177 acres per annum, and aggregating 19,069,238 acres. During the second period—five years—population increased 14.2 per cent. and the area in cultivation 42 per cent.; the average annual additions to the cultivated area being no less than 9,525,710 acres, and aggregating 47,628,548 acres. The third period shows population increasing a trifle less than 14 per cent., cultivated acres 21.2 per cent., and an average annual addition to the area in staple crops of 6,841,661 acres; the aggregate reaching 34,208,307, which was still out of proportion to the increase in population. During the five years ending in 1889, the rate at which population increased was practically the same as in the preceding periods, but the rate of increase in cultivated acres was reduced to 8.1 per cent., being but 1.6 per cent. per annum; the average annual increment of the cultivated area shrinking to 3,150,276 acres—little more than half the normal requirements—and clearly showing the rapid diminution of the arable lands.

Although the population was 14,500,000 greater in 1889 than ten years earlier, and the desire for farms just as keen as ever, yet

†Groups of States.	Surface Area of each Group.	Cultivated Area in Staple Crops, 1867.	Cultivated Area. In Staple Crops, 1874.	Cultivated Area. Percentages * of Decrease and Increase, 1867 to 1874.	Cultivated Area. In Staple Crops, 1879.	Cultivated Area. Percentages of Increase, 1874 to 1879.	Cultivated Area. In Staple Crops, 1884.	Cultivated Area. Percentages of Increase, 1879 to 1884.	Cultivated Area. In Staple Crops, 1889.	Cultivated Area. Percentages of Increase, 1884 to 1889.
North Atlantic,.....	117,063,680	24,200,679	20,095,201	*17.0−	25,300,000	25.8+	25,381,221	0.3+	25,812,000	1.7+
Lake, ...	206,784,669	31,331,211	37,277,419	19.0+	47,054,210	26.2+	52,912,402	12.4+	56,207,000	6.6+
Missouri valley, ...	274,069,251	7,429,928	18,668,861	151.3+	34,369,967	84.1+	49,953,764	45.3+	56,013,000	12.1+
Southern, ...	522,194,948	29,125,249	33,340,163	14.5+	48,561,259	45.6+	58,119,953	19.7+	62,957,000	8.3+
Mountain States and Territories, ...	553,047,040	286,459	292,876	2.2+	1,250,000	32.7+	1,519,973	21.6+	2,150,000	41.4+
Pacific coast,..... ...	206,764,160	1,970,000	3,738,244	89.8+	4,505,876	20.6+	7,362,306	63.3+	7,861,000	6.8+
Indian Territory, ...	44,481,600	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals in cultivation,.	.....	94,343,526	113,412,764	.....	161,041,312	.....	195,249,619	.....	211,000,000	.....
Increase of cultivated acres each period and rate per cent. of such increase,	....	.....	19,069,238	20.2+	47,628,548	42.0+	34,208,307	21.2+	15,750,381	8.1+
Population and percentage of increase during each period,	.....	36,211,000	42,796,000	18.2+	48,886,000	14.2+	55,556,000	13.7+	63,540,000	13.8+
Average annual increase of cultivated acres each period, and yearly rate per cent. of such increase,	.....	.....	2,724,177	2.9+	9,525,710	8.4+	6,841,661	4.2+	3,150,276	1.6+

†"North Atlantic"=seaboard States from Maine to Maryland, and Vermont.
"Lake"=Ohio, Indiana, Illinois, Michigan, Wisconsin, and Minnesota.
"Missouri Valley"=Iowa, Missouri, Kansas, Nebraska, and the Dakotas.
"Southern"=all south of the Potomac and Ohio, and Arkansas and Texas.
"Pacific Coast"=California, Oregon, and Washington.
"Mountain States and Territories"=all else except the Indian Territory, Alaska, and public land strip.

in the last five years, with fully a fourth more people desirous of becoming owners of farms, the number of acres added to the cultivated area was but one third as great as during the five years ending in 1879; being in the later period 15,750,000 acres, as against 47,628,000 acres in the earlier one; whereas, had the increase in acreage been in the same ratio to population as in the earlier period, such additions would have reached a total of 61,600,000 acres. The land hunger being quite as sharp now as in the eighth decade, it is evident that there is a lack of the means of gratifying it.

The foregoing table and the partial analysis following, enable us to see the progress of agricultural development and the occupation and gradual diminution of the arable areas in the several districts. They help to a clearer appreciation of the effects of such rapid development upon the agricultural and other interests, and indicate plainly that the existing depression is due, in large measure if not wholly, to an increase in cultivated acres out of all proportion to the synchronous increase in population, at the same time suggesting the inquiry, Where can be found the arable lands to satisfy the land-hungry home-seekers now ready to settle, in countless swarms, upon any fraction of an Indian reservation that is at all likely to be thrown open to settlement?

The unoccupied area in the North Atlantic group covers some 7,500,000 acres. It lies mostly in the Aroostook and Adirondack regions, and is almost wholly unfit for cultivation, being either rough and mountainous, swampy, or heavily timbered, with soils of very low fertility, of which but a small fraction can be brought under cultivation. In Michigan, Wisconsin, and Minnesota are tracts aggregating some 10,000,000 acres which are valuable only for the forest growths above and the minerals below the surface. These lands will add but little to the cultivated acreage.

Such portions of Texas, Kansas, Nebraska, and the Dakotas as lie west of the 100th meridian have generally been included among the arable areas, and it has been esteemed an act of treason for a citizen of any one of those States to maintain that only such parts of this vast tract as are susceptible of irrigation can rightfully be so designated. This immense plains area, covering as well large parts of New Mexico, Colorado, Wyoming, and

Montana, is at best but a pastoral region, in which repeated attempts have been made to reduce the lands to cultivation. Successive armies of settlers have invaded these desiccated plains, but after expending their means and suffering deplorable hardships, have found it necessary to abandon land and improvements. This is the area from which arises that perennial cry for aid, as it is also the land from which a refluent wave of population moves eastward with as much regularity as the return of Autumn.

Much of the soil being fairly fertile, these plains offer no obstacles to settlement and cultivation, except such as are found in the climate; that presents the same peculiarities of aridity, extreme variations in temperature, and excessive evaporation found in the elevated regions of Central Asia. It is true that near the eastern borders of this tract fine crops are occasionally grown, but only in years when the rainfall is exceptionally great and the dreaded simoom fails to wither all vegetation. Such exceptional seasons, however, are but "a snare and a delusion," inducing men to waste their energies and means in abortive attempts to cultivate these arid soils. Occasionally the arid features of the climate of the plains are projected several degrees eastward, sometimes reaching Missouri and Arkansas, with disastrous results to the husbandman.

Could water for irrigation be obtained, much of the plains region could be made productive; but most of the streams penetrating it are even now yearly drained dry by irrigating canals, which supply water to irrigate but the smallest fraction of these immense areas. During the seasons of 1887, 1888, and 1889 (and nearly every year of late), many miles of such canals remained dry during the entire Summer, owing to the complete appropriation of the water by canals opening from such streams nearer their source. In seasons of excessive drouth and deficient snowfall, the water available is lessened one half or more; hence irrigation from the water flowing in such streams has about reached its limit. This is notably true of the Platte, Arkansas, Cimarron, and Rio Grande.

Many schemes have been proposed for utilizing the water said to flow below the sand in the valleys, but such projects involve immense outlays, are as yet unfruitful, and, it is generally

believed, will long remain so. Should such plans, however, ultimately prove successful, the resulting supply would suffice to irrigate but an inconsiderable fraction of the arid lands, being inapplicable outside the immediate vicinity of the streams.

Extending from the Gulf to far north of the Canadian boundary, and from the vicinity of the 100th meridian to the Rocky Mountains, the plains embrace an area of hundreds of millions of acres, of which probably one third, with sufficient water for irrigation, could be made productive; but under existing conditions it is very doubtful if three per cent. should be included under the term arable, and such arable part is nearly or quite occupied, even though a part of it is unimproved.

Lying west of the plains is the still more arid region of the mountain ranges and plateaus, where are found numerous fertile valleys, mostly of limited extent, which, when not at too great an elevation, and when supplied with water for irrigation, are very productive; yet in such favored localities occur seasons of excessive drouth, when the supply of water (resulting mostly from melting snow) proves wholly inadequate for the limited acreage under cultivation, as was the case in Nevada, Utah, and other arid districts in 1887, 1888, and 1889.

The regions where irrigation is a condition precedent to successful agriculture, include an area of some 784,000,000 acres, of which, owing to scarcity of water and lack of soil, not more than five per cent. is susceptible of cultivation; and there is no satisfactory evidence that water can be obtained to irrigate the half of five per cent. The construction of extensive irrigation works necessitates the expenditure of much money and takes long periods of time, and few of those now living will see the completion of such works as will be required to irrigate the 30,000,000 acres of arid lands which the Public Land Commission estimates as irrigable from existing supplies of water.

In adopting the estimate of the Public Land Commission, that but 30,000,000 acres of the arid lands are irrigable from the available supply of water, I am not unmindful of the fact that such estimate conflicts with that recently made public by Major Powell,* namely, that "there are nearly 1,000,000,000 acres of

* "Century Magazine," March, 1890.

these arid lands in the United States, of which nearly 120,000,000 acres can be irrigated when all such waters are used."

I am unable to accept that estimate for many reasons, one of which is found in the fact that the mountain States and Territories include an area of but 553,047,040 * acres, to which may be added, as arid, one fourth of Texas and Kansas, one third of Nebraska and the Dakotas, one half of California, two thirds of Oregon and Washington, and the whole of the public land strip (No Man's Land). We thus have an aggregate of but 784,000,000 acres, or less than 80 per cent. of 1,000,000,000. I apprehend that but few people will contend that any greater proportion of the States named should be classed as arid, and many are sure to object seriously to the inclusion of even the proportion stated.

Nearly or quite all those familiar with the arid regions consider the estimate of the Commission, that one acre in twenty is susceptible of irrigation, quite as high as the facts warrant; and it should be borne in mind that most of the arid lands which could be easily and cheaply irrigated have already been brought under the plow, yet up to this time less than half of one per cent. of the area is in cultivation.

Before any considerable additions can be made to the irrigated lands, extensive surveys † must be made; existing claims, water rights, and titles—inchoate and complete—extinguished; national and State laws formulated and enacted that will harmonize or extinguish conflicting national, State, municipal, corporate, and individual interests; and then extensive and costly works constructed—all of which will consume much time. In the interim, population and consumption will have outrun production, the small remainder of the unoccupied non-irrigable arable lands will have disappeared, and such portions of the arid districts as can be brought under the plow will be needed to meet the urgent wants of an ever-increasing consuming element.

The processes and progress of agricultural development in prairie regions where rains are ordinarily sufficient, and in moun-

* See table, page 463.

† Major Powell proposes four different surveys—topographic, hydrographic, engineering, and geologic—which will certainly require several decades to complete, and which will cost vast sums.

tain districts where arable lands, susceptible of irrigation, exist only in tracts of small extent, differ most radically, as is evident when the progress made in Nebraska and Kansas is contrasted with that made in Colorado and Utah. Utah has been settled more than forty years; Colorado, Nebraska, and Kansas from thirty to thirty-five years. In 1887, Colorado had 368,000 acres employed in growing staple crops; Utah, 353,000; Nebraska, 7,761,000; and Kansas, 9,120,000 acres; the cultivated area in Kansas being more than twelve times that of Colorado and Utah. Had any considerable part of the lands of the mountain districts been arable and susceptible of irrigation, they would long since have been seized upon for farms by the great army of the landless.

The uncultivable character of the lands of plain and mountain districts, and the rapid diminution of the unoccupied arable soils of the United States, have been clearly shown by the events following the opening to settlement of the limited and not over-fertile Oklahoma country, when men who had failed to find satisfactory locations in California, Oregon, and Washington retraced their steps, hoping to secure land upon which to found a home, only to find in advance of them an army of would-be settlers large enough to occupy a territory ten times the size of Oklahoma. Similar scenes have more recently been enacted upon the opening of a part of the Sioux Reservation, where a land-hungry myriad, in the depth of a Dakota Winter, contended for the possession of lands wholly within the belt where the farmer must strive with drouth and a soil below the average in fertility.

While I write, an army of settlers, estimated at from 20,000 to 50,000, is camped along the southern Kansas border, impatiently waiting a proclamation from the President—which may not come for many months—opening to settlement the good, bad, and indifferent lands of the Cherokee Outlet; which body of land will probably furnish some 20,000 fair to good farms of 160 acres each, and a like number that will not pay for cultivation; the remaining 16,000 quarter sections being fit only for pasturage, and much of it of little worth for that purpose. These statements will not be challenged by persons familiar with that country, unless they are engaged in "booming" the district in question.

In California, as well as in the States of the Missouri valley, there is much land yet unoccupied, mostly in the possession of corporations and individuals, who are holding it for Henry George's "unearned increment." These lands are likely to be brought into cultivation very tardily, and in such a manner as to add but little to the area in grain crops, as they will no more than replace lands diverted from cereal culture to pasture and meadow—a diversion necessitated by the constantly-increasing number of animals kept.

In Oregon and Washington are great unoccupied areas. Such portions of these unoccupied lands as lie east of the Cascade Mountains—say two thirds of each State—possess many of the characteristics of other mountain districts, with a soil of low fertility. Such small fertile portions of western Oregon and Washington as were without timber have long been occupied, while the remainder of these fertile districts is so heavily timbered as to render such lands unavailable as a source of food supply during this century.

Far at the southeast, in Florida, is found an immense unoccupied area—some 12,000,000 acres or more—but this region is a land of sand-barrens, impassable swamps, dense forests, and everglades, little of which is fit for human habitation. Long as Florida has been settled, and though by reason of possessing the advantages of a semi-tropical climate it has become the Winter abode of so many well-to-do people, it shows but little agricultural development, doubtless because of the sterility and uncultivable character of a great part of the lands. The result is that, aside from the area employed in growing fruits and vegetables, less than three per cent. of the surface of the State is in cultivation. With such a showing, it is clear that Florida will make no material additions to the area employed in growing staple crops.

Scattered through the southern States are many unoccupied tracts; but of these only a small part can be designated as arable, for much of such land is swamp, mountain, or subject to overflow; this being especially true of such remnants of the public domain as are still to be found in the southern districts. Still, we are likely to see some extension of the cultivated area in southern States, more especially in Arkansas and Texas; there

being in those States much unimproved land included in farms which will hereafter be reduced to cultivation and used, principally to augment the supply of cotton.

In the Indian Territory is found the only large body of fairly fertile lands yet to be brought into cultivation. The area of that Territory is 44,481,600 acres, the eastern two thirds of which possess a soil of average fertility, while the remainder is much below the average. The peculiar climatic conditions of the arid plains are frequently projected over the western portion, rendering mixed farming but a precarious means of subsistence. Various tracts in the Territory will be opened to settlement from time to time as the Indian titles are extinguished; but it will be mostly in the western and by far the poorer part, for the eastern and better soils will for a long time remain in the possession of the Indians and the "squaw men." The Indian and his white son-in-law and tenant now cultivate much land (possibly 500,000 to 1,000,000 acres), of which, as early as 1880, a large proportion was in cotton. Within the last year, 16,000 bales of cotton were shipped from one station. Although the products of the Indian Territory are not included in the reports of the Department of Agriculture, yet they enter into consumption and make some additions to the marketable surplus; and this acreage will in time appear in the reports, probably as current additions to the area in staple crops.

The foregoing table and text afford a reasonable basis for an estimate of the lands that can be added to the cultivated area within a given period, say during this decade. But before proceeding to make such estimate, it may be well to inquire what the Public Land Commission had to say on this subject in its report for 1880, wherein it was estimated, June 30, 1879, that (exclusive of certain lands in the southern States) of lands over which the survey and disposition laws had been extended, lying in the West, the United States did not own, of arable agricultural lands which could be cultivated without irrigation or other artificial appliances, more than the area of the present State of Ohio, viz., 25,576,960 acres.

Of the public domain then remaining, the Commission made the following estimate:

Timber lands,	85,000,000	acres.
Coal lands (to be largely increased by better classification),	5,529,000	"
Mineral lands (subject to a large increase by new discoveries),	64,800,000	"
Arable lands in northern States and Territories,	17,800,000	"
Lands in southern States, surveyed and unsurveyed,	25,585,000	"
Irrigable lands, being the lands which can be irrigated from the present supply of water,	30,000,000	"
The remainder, pasturage, grazing, desert, and all other lands useless for agricultural purposes by reason of altitude or lack of water or of soil, including remainder of lands likely to be segregated for private land grants still unsatisfied, and Indian and military reservations, including also unsurveyed area of the Indian Territory, viz., 17,150,250 acres,	565,701,222	"

An analysis of this estimate will show that of the public domain unoccupied in 1880, there were then some 100,000,000 acres which might be included under the designation arable, and made up as follows:

17,800,000	acres of arable lands in northern States and Territories.
8,000,000	" in southern States.
30,000,000	" of irrigable lands.
17,000,000	" in Indian Territory.
28,000,000	" of surrendered railway grants, and Indian and military reservations.
100,800,000	acres total.

Since 1880, more than 60,000,000 acres of these arable lands have been occupied and largely brought into use, and the only unoccupied remainder of any moment is found in the lands of the Indian Territory, and in that portion of the widely-scattered irrigable lands yet unsettled, the available total of which cannot exceed 40,000,000 acres, and is probably much less; and the major part of these lands is so conditioned that development must be slow. To these 40,000,000 acres may be added an indefinite quantity of railway, school, college, and State lands, much of which is wholly unfit for cultivation. Estimating with extreme liberality, the arable portion of these lands may be put at 30,000,000 acres; then, adding 30,000,000 acres more as the undeveloped arable lands now constituting parts of farms, or yet

unoccupied lands owned by individuals, we have a possible total of 100,000,000 acres yet to be brought into use, equivalent to 625,000 farms of 160 acres each.

Of the farm areas included in the census of 1880, thirty-five per cent. was in woodland, thirty-one per cent. was employed in growing staple crops, and the remainder was in minor crops, or was reckoned as farm yards, pasturage, and unused waste land. It is probable that the proportion employed in growing staples has risen to one third; and we may assume that thirty-five per cent. will be the maximum proportion of the new farm areas added from the possible 100,000,000 acres that will be devoted to the production of staple crops, thus increasing the productive power some 16.6 per cent. Such increase is likely to be less rather than more than one sixth, for no inconsiderable part of these lands is even now included in farms, and will come under the plow very slowly, if at all, being now largely in use for grazing farm animals; and the requirements for that purpose are constantly increasing. It is also well to remember that 100,000,000 acres, the available arable area still remaining, is the sum of estimates liberal in the extreme, and that in New Mexico and Arizona alleged Spanish and Mexican grants are likely for a long time to retard development. According to the ascertained per-capita requirements of land in staple crops, the existing cultivated area is sufficient for nearly 67,000,000 people, and with an addition of one sixth we have a potential supply of cultivated acres sufficient for a population of 78,100,000, which number will probably be reached in 1898 with an annual increase of but 2.5 per cent.; but not till many years after 1898 will all these lands be brought into production. Could 35 per cent. of 100,000,000 acres be at once reduced to cultivation, the added acreage in staple crops would barely furnish supplies for such additions as will be made to the population within seven years.

It has long been a favorite boast that American agriculture could feed the world; but a critical examination of its further possible development brings us face to face with a state of affairs suspected only by the few, and shows plainly that long before the close of this century the increase in population and the inevitable exhaustion of the arable soils will necessitate one of two

things, namely, the adoption, on the part of the great mass of the people, of a less liberal standard of living, or the practice of more thorough modes of culture. Probably the ability to support a greater population from the products of American fields will come from a resort, in some measure, to each of these alternatives.

The average American, ambitious and somewhat extravagant in his mode of living, will be reluctant to reduce the standard, and only the enhanced cost of indispensables will impel him to do it; while, on the other hand, the farmer is a conservative, and will need the stimulation of high prices to induce him to change modes of culture learned and ingrained in youth. But all-sufficient motives will be found in the high prices which will surely follow the exhaustion of the arable areas, and the consequent reduction of the per-capita quota of cultivated land.

By the adoption of a more economical way of living, and by the increased production flowing from improved culture, the per-capita requirements can probably be reduced from 3.15 acres to 3 acres, when the land now in cultivation and that which can be brought into cultivation will sustain a population of 82,000,000, —a number that will probably be reached by the close of the century—while two, three, or four decades will doubtless be required to bring the remnants of the arable areas into production.

This seems the more probable in view of the fact that the average rate of increase in cultivated acres during the last five years has been but 1.6 per cent. per annum, as against 8.4 per cent. ten years earlier, and that it must grow less and less continuously, by reason of the constant shrinkage in the quantity of arable lands subject to draft; hence it would be a most liberal estimate to place such increase, during the remainder of the century, at an average of one per cent. per annum, which would, at the end of 1899, make the cultivated area devoted to staple crops some 232,100,000 acres, or sufficient, at 3.15 acres per capita, for a population of 73,682,000 (and at 3 acres per capita, for a population of 77,366,000), with the possibility of adding from 13,000,000 to 15,000,000 acres more in the earlier decades of the twentieth century. This, however, is an extremely liberal estimate, while a reasonably cautious one would put the rate of increase in cultivated area, during the remainder of the century, at

one half the rate obtaining since 1884, or an average of eight tenths of one per cent. per annum. That would in ten years augment the cultivated area by 16,880,000 acres, making an aggregate of some 227,880,000 acres, or sufficient, at 3.15 acres per capita, to meet the requirements of 72,343,000 people (and at 3 acres per capita, of 75,960,000), which is probably as large a population as our fields can provide for during this century.

In view of the rapid reduction in the rate of increase, and the constantly-diminishing quantity of unoccupied arable land to draw from, an addition of 16,880,000 acres of cultivated land seems to be quite as much as can be expected in this decade. During the remainder of this century, the annual increase in consumption will necessitate average yearly additions of 17,000,000 acres to farm areas, of which more than one third must be land actually producing staple crops. With but 100,000,000 arable acres to draw from, of which a considerable part is already included in farms, there would appear to be little difficulty in determining the maximum time that will elapse before the exhaustion of the material from which new farms can be carved in numbers sufficient to meet the requirements of the increasing population, and after which consumption must, as in Europe, be met from the products of a given and unexpanding area supplemented by an importation of food.

C. Wood Davis.

DEFENSES AGAINST EPIDEMIC DISEASES.

CONTAGION and infection are held by some authorities to be synonymous terms. It is better, I believe, to regard them as different. The term contagion is applied to those disease poisons that require direct contact with the person suffering from them to effect their reproduction, while infection is transmissible through the medium of the air or of some other agent, as water, or food. The poison of glanders, malignant pustule, and venereal disease is contagious, while that of cholera, yellow fever, typhus and typhoid fevers, tuberculosis, small pox, and scarlet and other eruptive fevers of childhood is infectious. This classification does not perfectly cover the ground, as some of the latter diseases are both contagious and infectious. The poison of the infectious dieases interests us most, for these diseases are most common and most fatal. The power they have of infecting the air we breathe, and the food and water we take into our systems, makes them rank among the deadliest enemies of mankind.

The characteristics of the infective principle of the different diseases are in some respects identical. For instance, all the infective diseases require a certain period of time to elapse between the entrance of the poison into the system and the appearance of the disease. This shows that in the case of each disease the poison is reproduced in and by the human system, until a sufficient quantity is present to effect the derangements known as the symptoms of the disease. Until recently we knew the infective diseases only by these symptoms; now we know some of them by the appearance of the germs that cause them. We know the conditions under which they thrive and multiply.

Collections of organic matter in a state of decomposition, undisturbed accumulations of filth, are the hot-beds of these germs. It follows, therefore, that cleanliness and fresh air are their natural foes. Ventilation, by diluting an infected atmosphere, prevents the concentration of the poison. This is the reason why

the eruptive diseases do not prevail in Summer, when windows and doors are kept open. We know the conditions by which disease poisons are transmitted and the media by which they infect. It is possible to exclude them from our food and drink, and to do this with certainty.

If we do not exercise the care necessary to prevent the pollution of our water supplies and food supplies, by compelling efficient governmental supervision of them, we must expect to suffer from infectious disease. Heat will destroy all forms of life; therefore, during the prevalence of infectious disease we can reduce the danger to a minimum by thoroughly cooking our food, and by avoiding uncooked articles of diet; by boiling our milk and water before drinking them; by washing our persons and our table and kitchen utensils with water that has been boiled. Different persons are susceptible in different degrees to the disease poisons, and even the susceptibility of the same person differs at different times. A depressed state of the system seems to favor the development of the disease germs. Heredity, too, appears to influence susceptibility. We often meet with families that seem to be specially protected against infection and contagion, while others "catch" everything that comes their way. The power of resistance in the former would appear to be due to an invulnerability to disease poisons.

The contagious and infectious diseases have received the name of "zymotic"; indeed, the term zymotic covers all diseases that have what is called a period of incubation, that is, a space of time between the reception of the poison into the system and the development of the disease. Zymotic means fermentative, and the peculiarities of most of the infectious and contagious diseases would indicate that this epithet is not a misnomer. Take, for example, small pox, and see how closely its poison-infective principle resembles the yeast fungus. The latter attacks and destroys sugary matter in dough or in wine, and having "worked" a batch of dough or a cask of wine, can never again effect fermentation in it. Small pox does not, as a rule, attack an individual a second time, even though his exposure to it be extreme. The material in his system upon which the infectious principle works, seems to be exhausted by it, just as saccharine

matter is exhausted by yeast. Vaccination probably destroys in a milder way the material upon which the more deadly disease feeds. As the human body is alive and is constantly wasting and reproducing itself, it comes about that in time the food for the disease is reproduced, and then the system needs to have its susceptibility again destroyed by revaccination. So close is this resemblance between yeast and the small-pox principle of infection, that observers have attempted to prove that the yeast fungus, acclimatized in the human body, is the cause of small pox.

Three theories have been advanced by leading students of the zymotic diseases to account for their peculiarities. These theories are all ingenious, but they are based only upon circumstantial proof. They are known as the "vital germ theory," the "nervous theory," and the "microphyte theory." The latter at present is the most widely accepted. I will take up each separately, and in a few words describe it.

The vital germ theory, propounded by Dr. Lionel Beale, is based upon the doctrine that the human system consists of vital germs, separate particles of matter, each less than $\frac{1}{10000}$th of an inch in diameter, and described as soft, without color or structure, surrounded by an envelope or capsule through which liquid food passes to maintain growth. These germs, or bioplasts as they are called, multiply when they have arrived at a certain age, by splitting into halves, each half forming a new bioplast. Disease germs are believed by the advocates of this theory to be unhealthy or corrupted bioplasts; and they have the same power of development and growth as healthy bioplasts, both in a diseased body and in the body of any healthy person that they happen to enter. The contagious bioplast is said to be less than $\frac{1}{100000}$th of an inch in diameter, and though each disease has its specific germs, their differences cannot be determined by the microscope or by analysis.

The nervous theory, defended by Dr. B. W. Richardson, is based upon the analogy between the action of serpent poison and the poison of zymotic disease. Its advocates claim that disease poisons are developed in the secretions of the sick by changes in their character. They believe that secretions previously healthy may sometimes become changed into the poison of some of the

various infectious and contagious diseases, without previous infection. The development of the abnormal secretions they believe to be due to nervous impression upon various glands. Thus, say they, hydrophobia is due to abnormal saliva from the salivary glands, scarlet fever to diseased secretions of the lymphatic glands, and diphtheria to those of the throat glands.

The third, and most generally-accepted theory, is the germ theory proper. Its many advocates hold that the poisons of disease are microbes belonging to the vegetable kingdom. Competent observers have found in almost all of the infectious and contagious diseases, microbes that are always present and that are different for each disease. In some cases they have isolated these microbes, cultivated them, and produced symptoms of the several diseases in animals artificially infected by them.

The first and second theories account only partially for the peculiarities of contagious and infectious diseases; the last seems almost perfectly to cover the ground.

Infectious and contagious matter is not difficult to destroy, though if it be left undisturbed it retains its activity for a long period. The following case, which came under my notice, is illustrative of this. A servant was employed in a house where two children sickened with scarlet fever. After their recovery she lost her situation, and not till seven months later did she obtain a new place. She was several times engaged before she found a family with whom she seemed likely to have permanent employment. She then sent for her trunk, which meanwhile had remained undisturbed in the care of a friend. This trunk contained some wearing apparel that had been in direct contact with the scarlet-fever patients. Within a week after she had donned this apparel, three children in her employer's family were attacked by the fever, and two of them died.

Let us now consider the means by which we may prevent and destroy the causes that produce zymotic diseases. The first effort of the sanitarian is to compel people who are gathered together in cities and towns to live in a way conducive to health; to construct their dwellings so that they shall be well ventilated; to prevent filth from accumulating; to regulate noisome industries; above all, to protect the food and water supplies. To ef-

fect all this an elaborate system of police has been devised, which enforces the laws relating to health matters. But notwithstanding all precautions that can be taken, zymotic or filth diseases will creep in and destroy life. These diseases can be kept under control only by isolation of the patients, and by thorough disinfection of all rooms, clothing, etc., infected by them. In the case of small pox we have an additional safeguard, vaccination.

In the Health Department of the city of New York, a special bureau has charge of all matters relating to contagious and infectious diseases. This bureau comprises the corps of medical sanitary inspectors, the vaccinating corps, the disinfecting corps, and the Summer medical corps. A small force of clerks keeps its valuable records.

An ordinance of the Sanitary Code compels physicians to report to the Health Department all cases of contagious and infectious disease. The moment a case is reported, it is referred to the medical sanitary inspector in whose district it occurs. Eleven medical sanitary inspectors have in their charge as many districts, into which the city is divided. The inspector visits each case referred to him, supervising its isolation, and preventing persons who have been exposed to infection or contagion from intermingling with others. Business conducted in apartments in which transmissible disease exists, is stopped until the sick have recovered. All unsanitary surroundings that increase the severity of the disease or tend to favor the retention of its poison, are removed by an order served upon the owner of the dwelling. In case isolation on the premises cannot be effected, by reason of the construction of the house, or in the event of the sick person being too poor to employ a physician, the patient is moved to a hospital for proper treatment.

Should the disease be small pox, it is also referred to the vaccinator in whose district it occurs; and for this purpose the city is divided into as many districts as are necessary efficiently to cope with the number of cases of small pox daily occurring. Thus, in Summer, when but few cases occur, three or four men cover the entire city; while in Winter, when the disease is more prevalent, as many as fifteen or twenty physicians are required to do the work. It is the duty of the vaccinator to protect, by

means of vaccination, all persons who have been directly or indirectly exposed to the disease.

Cases of small pox occurring in apartment, tenement, or boarding houses, or in hotels, are always removed to a hospital. The building in which the case has occurred is placed in charge of a vaccinator, who takes an exact census of its inmates, and vaccinates all who are not already protected by vaccination. Every person who has been exposed is kept under observation for fourteen days, at the end of which time, if no other cases have occurred, the house and its occupants are relieved from the daily inspection of the vaccinator. It is deemed wise to revaccinate persons who have been exposed to small pox, if such persons have not been successfully vaccinated within three years.

At the termination of every case of contagious disease, whether by recovery, removal to a hospital, or death, the infected premises receive a visit from a member of the disinfecting corps, who thoroughly disinfects them, by means of gas generated from burning sulphur, and also by the use of disinfecting solutions. Old and filthy material is destroyed in a crematory which is kept constantly in running order at the disinfecting depot. Here also is an elaborate apparatus into which large articles can be put and disinfected by means of hot air or steam. A citizen desiring to have his house or rooms disinfected, has only to write a note to the Health Department requesting it. If the request is found to be based upon good grounds, it is immediately complied with at the expense of the city.

In Spring and Fall, vaccinators are employed for temporary service, in addition to the regular vaccinating corps. The city is then divided into a number of districts. A vaccinator is placed in each, who visits every house, and vaccinates all infants over three months of age whose parents desire it. In this way about 30,000 children are vaccinated annually. Adults who request it are also vaccinated. The operation is performed upon from 80,000 to 90,000 persons every year. The vaccinating corps of the Health Department was organized in 1874. The result of its work was not apparent until 1876. The deaths from small pox previous to 1876 averaged 59.57 per 100,000 per year; since 1876 they have averaged 8.38 per 100,000 per year, and this aver-

age is yearly being reduced. During the past sixteen months we have had only two cases of the disease in New York City. One of these cases occurred in the most thickly-populated part of the city, where the number of inhabitants per acre is greater than on any other spot in the world; yet so well was the neighborhood protected that not a single case occurred among the many persons that were exposed.

The work of the Summer corps is well known. Fifty physicians are appointed every year, during the heated term, to visit the poor and advise them concerning the care of their children. Further, these physicians coöperate with the many charitable organizations which give excursions about the city, thus affording to thousands of the poor an opportunity to breathe pure air. The result of this work has been that the death rate in 1888, in tenement houses, was less than the general mortality rate for the whole city. The zymotic or filth diseases are waning rapidly.

During the sixteenth and seventeenth centuries, epidemics swept over the civilized world, almost depopulating it. Small pox alone never entirely ceased, and every few years it became a great epidemic, even as late as the eighteenth century. Almost every person sickened of it once in his life. An immense number were blinded. Of infants, one third died before their first year, and one half before their fifth year. Asiatic cholera, the black death, typhus fever, and other epidemics also wrought fearful havoc. Sanitary art, now become sanitary science, stands an able protector against these. Armed with the effective weapons she places in our hands, we no longer dread such fearful visitations. Yet this science is but in its infancy. When it has reached its full growth, the filth diseases, now already called the "preventable diseases," will be things of the past.

CYRUS EDSON.